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A COMPARATIVE STUDY OF THE PRODUCTIVITY
OF OFFICES FROM TWO INDUSTRIAL SECTORS.

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Submitted for the Degree of Doctor of Philosophy
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University of Strathclyde, Glasgow.

1981.

ABSTRACT

The objectives of this research were to define and develop measures of the productivity of offices and to use these to determine some of the characteristics of offices that are associated with differing approaches to productivity. The study was initiated in the belief that the growth in the numbers of and proportions of office workers will bring about an increasing need to develop performance criteria which are relevant to the specialised nature of the information and communication service in organisations.

After a review of the evolution, the numerical growth and the distinct features of office employment, the concept of productivity was examined and a model was developed which conceptualised the productivity of offices in terms of two dimensions, efficiency and effectiveness; efficiency being the optimisation of the means by which resources are combined into final outputs, and effectiveness being the extent to which the office fulfils the information requirements of the organisation.

The model of office productivity was tested empirically by carrying out field research in two industrial sectors, engineering and insurance. These were chosen as representative of two differing approaches of management

to office productivity, insurance being identified with the 'white collar' industry approach, and engineering with the more traditional industrial 'shop floor' attitude. The variations in the levels of the productivity components were analysed and the offices were classified into four groups, each displaying a different combination of levels of the two productivity components. A relationship was then sought between each of these groupings and a number of different office characteristics.

The results showed that each grouping had several shared characteristics which, combined, were identified as a 'productivity orientation'. Analysis of each 'productivity orientation' showed that high levels of efficiency were associated with insurance sector offices, and with offices which were extensively computerised. High levels of effectiveness were found to be significantly related, not with a particular industry group, but with certain management and employee behaviour variables.

ACKNOWLEDGEMENTS

My thanks are due to numerous people who have assisted and encouraged me in this research project.

I am grateful to Emeritus Professor Mary E. Dunn who first provided the conditions and stimulation for me to commence the study.

A substantial debt of gratitude is recognised to my senior supervisor, Professor Angela Bowey, for providing the very necessary blend of research expertise and insight, both of which have permitted the study to progress to completion. Professor Bowey's interest in the research has furnished me with valuable perceptions of the nature of organisational behaviour and she has been the source of numerous ideas.

Professor Tom Carbery, my Head of Department, has been more than tolerant in recognising the problems which accompany commitments to both teaching and part-time research for a member of staff. In addition he has made many helpful suggestions which have substantially improved earlier drafts of the thesis.

The forbearance is acknowledged of my departmental colleagues who have shown understanding of the demands

which research has made on my time. I have also received assistance from colleagues in other departments who have at different times offered advice and assistance. In particular I would like to thank Mark Franklin and Roy Veitch for their advice on statistical analysis; the staff of the Computer Centre for help with computing facilities, and Professor James Livingstone for various helpful comments and suggestions.

The contribution of the office staff of the firms who completed questionnaires is acknowledged. Clearly their co-operation was an essential pre-requisite of this research. The layout and presentation is due to the willing efforts of Miss L.A. McCallum and Mrs. M.C. Leggate who, at different stages, undertook the typing work with unstinting enthusiasm.

Finally, I would like to express my thanks to my wife Joan and my two children. My son and daughter willingly checked computer coding sheets when they might have used the time more enjoyably. My wife Joan has regularly checked drafts and made countless suggestions for improvement in grammar and style and, above all, has tolerated my various moods during the course of the project.

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CHAPTER ONE

THE EVOLUTION OF CLERICAL EMPLOYMENT

Introduction

This first chapter traces the historical development of the occupational group 'clerical workers,' which forms the basis of this study. The main concern is to provide an evolutionary background to the study, by illustrating the changing role which clerical workers have played in the industrial structure and in different types of work organisation. The dramatic nature of industrial and occupational change since the Middle Ages can be attributed to a number of causes resulting from different processes - all mirrored by the nature of an evolving society. In tracing the salient features of the development of an occupational group over a period of time, the main theme has been to identify the characteristics of occupational membership, which have marked the changing role of the clerical worker in different historical periods.

The chapter begins by considering the almost professional status of clerical work in the Middle Ages, and the beginning of the decline in status during the Post Reformation period. The development of the counting house during the Industrial Revolution is examined, together with the beginning of the division of labour in

clerical work, leading to the increasing employment of females in the early twentieth century. Finally, the chapter highlights the results of the increasing use of computers on the nature of clerical work.

The Mediaeval Period

In the Middle Ages a clerical worker was a learned man, a member of one of the few groups of individuals who were literate. In those days it was not only the masses who were illiterate, but also a large proportion of the nobility, who often despised the arts of reading and writing as unprofitable or effeminate. (Henry I was known as Henry Beauclerc as a result of his supposed ability to read and write.) Literacy was however essential for the effective administration of power and property, and the collection of feudal dues and, for this reason, there were always employment opportunities for clerks.⁽¹⁾

It was customary for a clerk to take Holy Orders and although, in time, his association with the Church became more tenuous, he still carried with him much of the status of a Churchman. Thus the 'clerics' or 'clergy' originally enjoyed the protection of the Church, and this security enabled them to develop interests in other matters. Some studied law, others developed interests in areas as diverse as book-keeping, history, government and literature.

The term 'clerk' survives today in its many differing usages because of the wide Mediaeval meaning of the word. Thus there exist today in our society positions such as Clerk to the Council, Town Clerk, Clerk of Works, and Clerk of the Court; all roles of considerable authority and status dating back to the original Churchmen from whose duties the roles have emerged.

Mediaeval Britain witnessed an increase in the role of the power of central government, resulting in the creation of new laws, which required to be documented officially in written form. There emerged from this a growing requirement for clerks to service this developing legislation. There is evidence to suggest that the quality of clerical work in the government service was of a higher order than existed elsewhere, and that the clerks in the service of the king were setting standards of work which served as an example to others. Thus Stenton⁽²⁾ observes:-

"The example set by the King's clerks was evidently being felt outside the immediate sphere of his court".

The Norman rulers extended still further the administrative services of the monarchy, and they recruited additional numbers of skilled clerks in the creation of the separate departments of State, such as the Exchequer, and in the maintenance of the Domesday

Book. Such were the administrative refinements of the Norman rulers that England acquired the reputation of being:-

"The best governed and most orderly state in Europe".⁽³⁾

The increasing volume of clerical work was not limited to the field of government. In the 12th and 13th centuries, the nobility made use of clerks to assist with the administration of their estates. The main part of their work was concerned with the keeping of accounts and the accompanying of auditors on the annual tour of the estate after Michaelmas each year. There developed a demand for clerks skilled in the keeping of estate accounts and, as a result of this, Oxford University began to include manorial accountancy as an established branch of the 'ars dictandi' by the end of the 13th century.⁽⁴⁾

Referring to the work carried out by clerks in Mediaeval accounting, Oschinsky⁽⁵⁾ states:-

"While big estates could draw on their own clerical departments, and the increase of the home farm provided only a further stimulus to develop a system of accounting already in existence, the position was very different for the many small estates which had no clerical staff of their own. They would have been able to do without written accounts until the increasing demesne forced them to employ clerks for accounting, and it was probably in order to meet their needs that the University embarked upon the training of clerks."

A considerable volume of clerical labour in the Middle Ages was required in the writing out of manuscript books. Some of this work was undertaken by monks, but since much of their

writing was limited to chronicles and religious matters, there remained a range of writing which was undertaken by lay scribes, who worked either in the religious houses or in the homes of individual noblemen or bishops, who were patrons of learning. Other lay scribes obtained employment in university towns, where they earned a living by copying official university texts.

The extension of law and order which was a feature of Norman rule gave rise to clerical work for lawyers in the issuing of writs for different legal processes. Courts of law, which met in various locations throughout the country, employed clerks to assist with the administration of justice. In addition, the ecclesiastical courts, in the administration of their system of law, relied on clerks who were often lay clerks independent of the Church.

There was little clerical work in the industrial and commercial activity of the Middle Ages and it is very likely that individual traders undertook their own correspondence and book-keeping. The growth of trade, together with the post-Reformation decline of the authority of the Church, resulted in the secularisation of the clerks, in addition to an increase in the demand for lay clerks. Opportunities for the expansion of

clerical employment continued to arise, as a result of the further extension of the rule of law and order and the diversification of the various offices of state.⁽⁶⁾

To meet this demand for literacy, there commenced a limited extension of the educational system, which saw the development of the Mediaeval grammar schools, the majority of which were under the patronage of the religious orders. Employment opportunities for clerks arose from the copying of manuscripts for books, the keeping of army and navy records, the keeping of the accounts of various estates in addition to the general rise in the status of the written work.⁽⁷⁾ Trade, although still on a small scale, was increasing, and this undoubtedly provided additional opportunities for the employment of clerks as employees of merchants.⁽⁸⁾

The Post Reformation Period

The Post-Reformation Period witnessed a further expansion of trade, together with the emergence of several government institutions which developed the rule of law.⁽⁹⁾ London was developing as a centre of trade, and it housed the expanding activities of insurance and banking, which heralded new growth areas for clerical work. The establishment of the Bank of England in 1694, and the subsequent creation of other banks, saw the emergence of

the banker's clerk as a distinct figure in the commercial world.⁽¹⁰⁾ A rigid adherence to the details of book-keeping procedure was considered essential for a banker's clerk, who also had to display evidence of complete integrity.⁽¹¹⁾ The growth of insurance, particularly fire insurance after the Great Fire of London, provided a demand for clerical workers to maintain records of policies and premiums, and to carry out the administrative work which was necessary in a business of this nature. This development continued throughout this period until, by the start of the 18th century, life insurance became established on a firm basis, and such companies as the Royal Exchange, the London Assurance Corporation and the Phoenix were formed.

The increase in employment opportunities for clerical workers in the 16th and 17th centuries was followed by the development of specialised education for these employees, and the Tudor era saw the appearance of the first text-books for this purpose. One of the first English writers on clerical work was Hugh Oldcastle, whose book was published in 1543, and this was followed in 1547 by a work by John Weddington,⁽¹²⁾ whose book was entitled:-

"Abreffe Instruction and Manner how to keep Merchantes Bokes of Accomptes. After the order of debitor and creditor as well for proper accomptes, portable, factory and other. Very needful to be known, and used of all men, in the feattes of merchandise. Now of late newly set forth, and practised, by Johan Weddington, Cytizen of London, MDLXVII".

David Murray⁽¹³⁾ reports on the various books on clerical work, which were published around the end of the 17th century and which bear witness to the spread of the demand for a specialised training for clerical workers.

The 16th and 17th centuries witnessed a decline in the status of clerical work. From its exclusive prestige in the Middle Ages, literacy was now becoming more widespread, and the numbers of potential clerical workers increased. Because the majority of clerical workers were employed by the government, they tended to be associated with such unpopular activities as tax collecting, and litigation. Their close association with the upper classes tended to result in an isolation from the working people. The conduct of clerical workers in their duties was at times erratic, and reports of frauds and drunkenness gave further impetus to a lowering of their status. The conditions of employment of the clerical workers of this period are referred to by Acres⁽¹⁴⁾ who, when commenting on bank clerks, wrote:-

"However favourably the conditions of employment of the clerks may have compared with those prevailing elsewhere, their lot was in many respects a hard one considered from the modern standpoint. The hours of attendance were often extended to 8 o'clock p.m. or later in times of pressure, there was no earlier closing on Saturdays than on other days, 'leave' was only granted in exceptional circumstances and it became the practice for a certain number of staff to attend on 'Holy days' for the convenience of customers who might wish to transact business

This period sees clerks as an occupational group which was essentially marginal in nature, since they were alienated from the mass of workers on the one hand, yet they were :-

"even more dependent than others upon employers for the means of exercising their craft"⁽¹⁵⁾

The fact that literacy was more widespread meant that no longer could the clerks claim this as their exclusive advantage, and thus the long established stability of a clerk's employment was no longer assured. The lack of security was further emphasised by the linking of the duties of individual clerks to particular individuals for whom they worked. Thus,

"The relationship was a strongly paternal one in which, while clerks served loyally, employers were expected to provide protection and security."⁽¹⁶⁾

Some aspects of the nature of clerical work in the 17th century are revealed in the diary of Samuel Pepys, who was employed as a clerk at the Exchequer, before transferring to the Admiralty. As a clerk, Pepys was not as well paid as his cousin Thomas who,

"Being a shopkeeper could afford rather better viands than a salaried clerk".⁽¹⁷⁾

The expansion of trade, which was accompanied by more complex documentation, resulted in increased clerical work in the offices of the new joint stock companies. The introduction of shareholders brought with it the need to record share transfers and to maintain a register of

shareholders. The keeping of more detailed accounts became widespread, and the services of clerks were required to carry out this work. Referring to clerks in a commercial office Brown⁽¹⁸⁾ writes:-

"It is a curious experience to go through a set of ancient books. One can picture the old-world clerks in their periwigs and knee breeches writing up journal and ledger with a deliberation as archaic as their quill pens. Little thought was there in those days of time saving".

The Impact of the Industrial Revolution

The early stages of the industrial revolution had little effect on the demand for clerks in the employment of manufacturing organisations. The growth of the factories resulted in a demand for workers to operate the machinery and to work in the factories, but clerical work associated with mass production was relatively unimportant. It was not until the rise of capitalism was more advanced and until the joint stock company organisation was better established, that the era of the counting house becomes identifiable. The Counting House was probably small in relation to manufacturing premises,⁽¹⁹⁾ and the work was limited to record keeping, with specific reference to the maintenance of accurate ledgers providing information about the financial performance of the business. In such offices the working relationship between the clerk and the employer was inevitably of a personal nature, and the duties, according to Lockwood,⁽²⁰⁾ would be allocated as follows:-

"The most simple division of tasks in the older office was that between employer or partner who made the important business decisions, the book-keeper/cashier who dealt with financial records, and the ordinary clerk, who was responsible for correspondence, filing, elementary book-keeping entries and routine office matters".

The growth of trade, which followed the increase in production of the industrial revolution, resulted in the development of trading organisations which did, however, employ more clerical workers. Some light on the nature of office work in the early 19th century is shown by the essays of Charles Lamb, who was employed as a clerk by the East India Company. Describing South Sea House, where he was employed, Lamb⁽²¹⁾ observes:-

" offices roomy as the state apartments in palaces - deserted, or thinly peopled with a few straggling clerks".

The commercial offices of London in this era have been vividly described by Dickens in his various novels, with such characters as Tom Linkinwater, Bob Cratchit, and Reginald Wilfer who, according to Dickens, was:-

"..... a poor clerk. So poor a clerk, though having a limited salary and an unlimited family, that he had never yet attained the modest object of his ambition; which was, to wear a complete new suit of clothes, hats and boots included at one time".⁽²²⁾

Hours of work varied according to different employers. Clerks in the Bank of England offices worked from 9 to 5 in the early 19th century, whilst during the same period the law clerk William Cobbett worked from 5 a.m. until 8 in the evening. ⁽²³⁾

The specialisation of clerical work according to industrial or commercial activity was now beginning to develop in a more marked form. Bank clerks, law clerks, insurance clerks, railway clerks and service clerks each formed a separate category, which was characterised by different traditions, abilities and standards. In the less specialised field of industry and commerce, there was also emerging a tendency towards a division of labour, which was accompanied by a widening range of conditions of employment and rates of pay. Evidence of these varying conditions is revealed in the conflicting images, which emerge from the literature and writing of this era. The clerk was depicted as a pathetic character without dignity or status. According to Mills, (24)

".... the white collar man is more often pitiful than tragic as he is seen collectively living out in slow misery his yearning for the quick American climb

In serious literature white collar images are often subjects for lamentation; in popular writing they are often targets for aspiration".

In contrast, other groups of clerical workers seem to have enjoyed a considerably higher status, on account of their apparently superior employment positions. The clerical employees of the banks and insurance offices and the government appeared to have enjoyed a fairly genteel life style of middle class status, which according to Lockwood, (25)

".... all contributed to form a gentleman as different from the aristocratic gentry culture above him as from nature's gentleman below him. His distinguishing mark was respectability".

The prospect of promotion which existed in some clerical jobs further enhanced the status of the holders, and was an additional spur to middle class aspirations. Some clerks might have the opportunity of rising to a partnership in a financial concern, or to a position of authority in a government department. According to Orchard,⁽²⁶⁾ the business training which a clerical worker acquired provided him with:-

" the faculties which make clerks into merchants, and merchants into millionaires".

The early stages of the industrial revolution saw clerical workers as being, in the main, part of the middle classes socially, whilst forced, on account of low wages, to adhere to working class standards of living. This duality of role was gradually to change, as manufacturing and trading expanded as a result of the industrial revolution. This expansion brought about the recruitment of increased numbers to clerical employment, and as business grew in size, so the personal relationship aspect of the clerical worker's terms of employment began to diminish. In its place appeared a new 'white collar proletariat' who, although socially separate from the working classes, were nevertheless not a part of the more prosperous middle class.

Economic aspirations began to be manifested in the formation of friendly societies and various benefit societies, in which employees were encouraged to take an interest. In

1881, the Union of Post Office Workers was formed, and with the formation in 1900 of the Civil Service Clerical Association, the emergence of a primitive collective bargaining body was taking shape. Outside the Civil Service, the National Union of Clerks was the only conventional white collar Trade Union to be formed. Although the movement towards economic advancement was growing, the traditional roots of the 'gentlemanly job' were such, that trade unionism in its more overt forms was beneath the dignity of the clerical worker. The world of the counting house was not one in which trade unionism could easily grow. The allegiance of the clerks was divided by a loyalty to the employers, among whom the ambitious and more able hoped eventually to find themselves, and a growing need to achieve a degree of economic advancement commensurate with their desired social status.

Thus the effects of the industrial revolution were, in some ways, as dramatic on the lives and work of clerical workers as they were on the remainder of the working population. The principle of division of labour began to be applied in offices as the numbers of clerical workers increased, and the period saw a decline in the status of clerical employment, as the reality of the working conditions and levels of remuneration became known.

The Early 20th Century

By the start of the 20th century the spread of elementary education was increasing rapidly, so that the supply of potential clerical workers was rising. This factor, together with the introduction of the typewriter, introduced a new element to the field of clerical employment - female workers. Until this time, female workers were virtually unknown in offices. The Civil Service was the first major employer of women in offices, possibly following the report of the Royal Commission on the Civil Service⁽²⁷⁾ in 1875, which recommended the employment of women clerks on the grounds that they were:-

"well qualified for clerical work of a less important character at lower wages than men required".

By 1910, women had become well established as a sizeable proportion of the clerical labour force of government and telegraphic offices. In the offices of industrial and commercial undertakings, they were as yet a small minority, and considerable resistance to their employment was expressed by the male clerks of the banks and insurance companies. The outbreak of the World War in 1914, and the subsequent military recruitment of men, provided many more employment opportunities for women, and by the end of the war,

"clerical labour became one of the most important fields of employment for women, ranking third after factory work and domestic service".⁽²⁸⁾

The onset of this change in the sexual composition of the clerical work force was not brought about without resistance on the part of the male employees. Their reaction to the employment of women clerical workers in the Bank of England is reported to have caused a "mild sensation".⁽²⁹⁾ Elsewhere, concern was expressed by some male clerks at the possibility that the large numbers of women working in offices for lower pay than their male counterparts would threaten their own standards of living.⁽³⁰⁾

The demand for women clerks was stimulated not only by the fact that they were prepared to work for a lower pay than men. It was customary for women clerks to leave paid employment when they married, and this fact was welcomed by employers who operated pension schemes and incremental pay scales, since female workers did not remain long enough to qualify for a pension, or to earn at the higher rates of pay. According to Sir Algernon West⁽³¹⁾ in 1888, women clerical workers are:-

"accurate, they are quick, they are cheap and there is no superannuation".

The high turnover of female clerks meant that their average age was lower than men, and that the majority of them were young, unmarried women to whom clerical work was no more than a means of earning money in the interval

between leaving school and getting married.

The continuing industrial expansion of the early 20th century resulted in a trend towards the large scale organisation of office work. The effects of this were the development of an identifiable clerical workers' labour market, with an increase in the number of clerks who engaged in collective bargaining in the negotiations for wages and working conditions. By tradition, each clerk's salary was the subject of a private arrangement between himself and his employer. In smaller offices, the clerks were obliged to rely on the goodwill of their employers, if they wished to arrange a review of their salary. Writing of clerks in London at the end of the 19th century, Booth⁽³²⁾ said:-

'For clerks a Trades Union has no attraction. Its advantages are not apparent, the relationship between employer and employed being essentially personal'.

Increasingly, offices were becoming larger, resulting in the disappearance of this personal relationship and a greater concentration of office work under more standardised terms and conditions. The further growth of banking and insurance, and the development of credit trading were all factors which contributed to the nature of clerical work changing, a change in conditions from those of the small office to those of a larger, more

impersonal place of work which, in turn, altered the nature of the clerical work done in the offices. The nature of clerical work was changing also, as a result of the emergence of new office techniques, to service the developing needs of manufacturing industry. Newer methods of production involved a higher proportion of office workers, whose duties embraced work concerned with more sophisticated costing, estimating and production control systems. The scale of industrial operations was such that clerical labour was making a substantial contribution to the functions of planning, recording and controlling, all of which relied on the adequacy of the information provided by the clerks.

The application of the principle of division of labour to office work led to the creation of more and more comparatively simple tasks, which were proving attractive to women, who did not show a particularly high degree of interest in their work. According to Klingender,⁽³³⁾ the division of labour in large offices

"created the monster office in which vast numbers of clerks are herded together for their daily work, just as the concentration of capital in industry herded the former craftsmen or cottage workers in the factory".

Thus the increase in the numbers of female employees, together with division of labour and subsequent

mechanisation of tasks, led to the 'technical proletarianization' of clerical labour, which is generally associated with continuing decline in the status of the clerk in the 1920's and 1930's. The lowering of the prestige of clerical work during this period is frequently explained by the influx of female workers to offices, but it might more accurately be accounted for as a reflection of the general status of women in society, rather than any specific aspect of the quality of the work of women. Any occupation which has a high proportion of women will be likely to echo the general status of women in society. The decline in the prestige of primary school teachers in the early decades of the twentieth century can be regarded as a further example of the relationship between social and occupational status.

The Post War Period (1945 onwards)

The cost of clerical labour is now so high, that many employers are concerned about efficiency, and the past few years have witnessed the application to clerical work of a variety of productivity techniques which were originally used in factories. Such techniques, collectively known as Organisation and Methods, are applied with the main objective of ensuring that the maximum benefit is derived from the office work force. Some large firms

have their own Organisation and Methods departments, and many smaller businesses rely on the services of outside consultants for this purpose. The Civil Service is generally credited with the reputation of furthering, with greatest enthusiasm, the application of Organisation and Methods techniques to clerical work. This is reputed to have been established as long ago as 1919, as a result of the recommendations of the Bradbury Committee's⁽³⁴⁾ report, which concluded that a Treasury Investigation Section be formed to promote the use of better office methods and equipment. This emphasis on efficiency in clerical work was further evidenced by the formation in 1950 of the Organisation and Methods Training Council, which was founded by a group of large commercial firms, as a type of broking house for Organisation and Methods techniques.

The extensive use of these techniques is now commonplace, and examples of the benefits gained are documented in numerous books and publications.

One further development in this field is the application of Work Measurement techniques to clerical work.

Traditional opinion held that work measurement could not be applied in an office, because of the notion that clerical work was 'brain work', or because any savings would not be of significance. The repetitive nature of so much clerical

work, together with the increase in numbers of clerical staff, which would make any saving far more significant, has resulted in neither of these original objections being valid, and work measurement is now gaining a wider acceptance, with results which appear at times quite dramatic. (35)

Of significance here also is the mechanisation of clerical work, which has emerged as a product of the division of labour. As more and more simple routine tasks are isolated, it becomes possible to consider the extent to which they can be undertaken by a machine. Some machines are so complex, that their use in an office requires new and specialised skills, resulting in the creation of new posts at higher rates of pay. The question arises: to what extent does the increased mechanisation of clerical tasks affect those who work as clerks? According to Rhee:-(36)

"The emergence of the new office occupations weakens the traditional hierarchical structure of office and administration. The new prestige and status order is based primarily on intelligence. The new occupations are characterised by an absence of the visual image of the work done. In this respect as in others the work differs substantially from traditional office occupations. The latter continue none the less to exist, but they now attract a different type of individual".

The introduction of the computer to office work has resulted in the disappearance of many traditional routine

tasks and the creation of new employment opportunities for clerical workers.⁽³⁷⁾ At the bottom of the clerical hierarchy, the use of a computer can extract from some routine jobs the little skill which is required, and can substitute tasks which are even more boring and repetitive e.g. punch and verifier machine operating. However at the same time, there emerges the opportunity for the more intelligent and ambitious clerical worker to advance to the more interesting jobs of a programmer or a systems analyst.

Extensive mechanisation of clerical procedures, such as those brought about by the installation of a computer, may be seen as a means of dividing the clerical labour force into two sections:

1. Those who are confined to the routine tasks of data preparation.
2. Those whose duties are more intellectually stimulating and who, because of the training and expertise they have acquired, are now more likely to be associated with professional employees or managers.

A dichotomous grouping of this nature is evidenced by the disparate nature of the working conditions of the two groups e.g. the introduction of shift work to some office

machine operators, or the physical separation of the noisy machines (and thus also of their operators) from the rest of the office. Reporting on the installation of a computer, Kushner⁽³⁸⁾ concluded that the reduction of various occupational grades, following the elimination of certain tasks, resulted in a polarisation of jobs towards the higher and lower ends of the skill ladder. Mumford and Banks⁽³⁹⁾ did not find this in their investigation of a computer installation and they conclude that:-

"Machinists and control clerks in the bank were left with rather narrower functions than before, and the numbers of clerks required to complete specific tasks were reduced, but no jobs were eliminated".

Mechanisation in clerical work has introduced a new element into the traditional manual worker/office worker distinction. The use of machines has brought to clerical work a factory-type atmosphere, and has created a clear distinction between managing staff and operating staff. The office machine operators are :-

"The most factory like operatives in the white collar worlds"⁽⁴⁰⁾
The standardised range of tasks which utilise their skills is increasingly identifiable with the work of a factory operative. This division of clerical workers into highly qualified employees carrying responsibility for decisions, and a mass of unskilled employees whose duties are limited

to a series of simple unchanging operations, brings with it changes with regard to the role of clerical workers in the organisation. The notions of respect and loyalty and a common interest with the employer have less relevance in the newer context, and the disciplines of efficiency and professionalism have taken their place.

The emerging phenomenon of the large mechanised office, with its emphasis on efficiency, has resulted in benefits for some clerical workers and disadvantages for others. The disappearance of the close association with authority, the loss of status, the shift towards working in almost factory like conditions has removed from clerical workers much of the original middle class status which they formerly enjoyed. On the other hand, the growing employment opportunities within the clerical field have presented to some workers the opportunity to enter an occupational stratum which (even if the work is repetitive and dull) is seen as a form of superior employment. Referring to office machine operators in France, Crozier⁽⁴¹⁾ states:-

" thirty years ago they were labourers, seamstresses or maids. As deadening and as alienating as their assembly line work may be, for them it may constitute a promotion."

The increase in the numbers of computers in business applications has wide implications with regard to the future of clerical work. The development of computer

technology raises a number of questions with regard to the changes it imposes on clerical workers. Such questions relate to the variations in skill, responsibility and judgement which follow the installation of a computer, together with changes in the volume of work in the range of tasks to be undertaken. Mann and Williams⁽⁴²⁾ noted that the routine and pace of clerical work was becoming more closely tied to machines, and that the reorganisation of the system, after the installation of a computer, resulted in a higher premium on regular attendance at work and stricter deadlines with regard to work targets. The overall result of this was that many clerical workers reported that they had lost some of their traditional character.

Conclusions

It seems, therefore, that the clerical worker of the future will be assigned either to the role of a machine operative, limited to a series of routine, standardised tasks, or will form part of a much smaller group of employees, who retain a close association with those in authority, and who, as a result, enjoy the traditional working conditions associated with office work. This loss of status of the former group, together with the skill devaluation of individual tasks, must be considered against the background of the overall increase in the

size of the clerical work force. Much of the original prestige owes its existence to the numerically small number of clerks in employment. In a situation where clerical workers form almost one eighth of the labour force of economically advanced countries, it is reasonable to expect some loss of status, for this very reason of increasing numbers.. The clerical worker of the future will perhaps form a marginal occupational level, which will question some of the conventional theories, on which notions of white collar/blue collar labour force division rest. The marginality⁽⁴³⁾ of this role, which causes employers' associations to refer to 'staff workers' and 'salaried employees', also permits trade union leaders to regard clerical workers as having an increasing propensity to unionise.

It appears likely, therefore, that the future role of clerical workers will be increasingly formalised and subject to the influence of external constraints, thus losing the personalised and informal features of the earlier stages of its evolution. It seems inevitable that, since the clerical work force comprises an increasing proportion of the employed population, there will be increasing pressure on employers to establish performance criteria, in order to assess their contribution to organisational productivity. This study aims to provide

some empirical advances leading to the development of such criteria, and thus make a contribution to the dynamics of organisational performance.

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CHAPTER TWO

THE GROWTH OF OFFICE EMPLOYMENT

Introduction

This chapter examines the numerical growth of the occupational group 'clerical workers' over the last fifty years. The extent of this growth highlights the importance of the fact that the continuing thrust for increased productivity, for creating more economic value per unit of human effort and per unit of invested capital, no longer takes place only on the factory floor, but also in the area of office work. In comparison with other occupational groups, the growth in numbers employed in office work has been disproportionately large, as a result of two main factors, namely, increased industrial complexity, and the growth of the service economy. One result of this growth is the need to focus attention on the formation of productivity criteria appropriate to office work, to ensure that a comprehensive picture of the employment of the office work force is available. The sources of information, on which the data are based, are the published tables of the U.K. Census of Population and the results of various surveys of occupations in manufacturing industry, undertaken by the Department of Employment.

Statistical comparisons of occupational classifications over different industries are difficult to make, because of the modifications to the definitions of the various groups which are necessary, to take account of changes in industrial structure and occupational stratification. In an effort to overcome these difficulties, it is the practice for long term studies of industrial change⁽¹⁾ to devise modifications to the official methods of classification. Such modification can complicate the analysis of the information and inevitably raise questions on the scientific accuracy of the conclusions formed. The 'clerical worker' group of occupations has been largely unaffected by classification changes, consequently the difficulties resulting from the possible inaccuracies of data based on classification changes are not pertinent to this study. A further factor, which is relevant to studies of trends in occupational structure, is the importance of distinguishing between absolute and percentage changes.

Population Growth

One of the basic factors which influences occupational patterns is population growth. Changes in the size and composition of the population affect the demand for goods and services in varying ways. The number and characteristics of persons available for work are also

a reflection of population size. Table 2.1 shows that, between 1911 and 1971, the population of Great Britain has increased from 40.8 million to 53.8 million, an increase of almost 32 per cent. The Table also shows the growth rate of the population of Great Britain over the period 1911 - 1971, and it can be seen that this has been consistent, at approximately 5 per cent, over every ten year period.

Table 2.1

Great Britain Population 1911 - 1971

<u>YEAR</u>	<u>POPULATION (000's)</u>	<u>GROWTH RATE (1911 = 100)</u>
1911	40,831	100
1921	42,769	105
1931	44,795	110
1951	48,854	119
1961	51,284	125
1971	53,822	132

Source: (1) Census. England and Wales, 1971, Preliminary Report. London, H.M.S.O. Table 1, p.1.

(2) Census. Scotland, 1971. Preliminary Report. Edinburgh, General Register Office. Table 1, p.1.

The Employed Population 1911 - 1971

It is reasonable to assume that the size of a nation's labour force will vary directly with the size of the population. Table 2.2 illustrates the extent to which this has prevailed during the period 1911 - 1971.

Within this period of time, the labour force of Great Britain grew from 18.3 million to 24.3 million, an increase of 32.8 per cent. The table shows that the rate of growth of the labour force, by and large, exceeded that of the total population, with the result that an increasing proportion of the population are becoming part of the 'employed group'.

This increasing proportion of the population becoming part of the employee group raises issues, which have a direct bearing on patterns of labour supply. It cannot be assumed that an increase in the total labour force means a proportionate increase in the various sectors of the employed population. Many different factors affect the employment pattern underlying these increased numbers. Variations in skill patterns are sought, as a changing technology makes new demands on the working population, having a consequential effect on the characteristics of the labour force as a whole. These same technological developments will be likely to render obsolete some jobs, whilst simultaneously creating demands

Table 2.2

The Population and Labour Force of Great Britain 1911 - 1971

<u>Year</u>	<u>Pop. (000's)</u>	<u>Labour Force (000's)</u>	<u>Labour Force % Pop.</u>
1911	40,831	18,350	44.9
1921	42,769	19,332	45.2
1931	44,795	21,024	46.9
1951	48,854	22,515	46.0
1961	51,284	23,639	46.1
1971	53,822	24,370	45.2

Source: (1) As for Table 2.1

(2) Labour Force data from R. Price and G. S. Bain, Union Growth Revisited: 1948-1974 in perspective. British Journal of Industrial Relations, Vol. 14, November, 1976, p. 346.

for new jobs. At the same time, an increase in the size of an organisation and in the scale of operations will result in specialisation and division of labour at all levels, together with the growth of an administrative component to maintain communication and control. In addition, the shift in economic activity from agriculture to manufacturing and from manufacturing to services is one of the main factors likely to affect the composition of the work force.

Occupational Groups 1911 - 1971

There is frequently confusion between occupational as opposed to industrial classification. The occupation of a person is the kind of work that he does, irrespective of the business of his employer; industry is determined by the business or economic activity in which his occupation is followed. Clearly a typist working, for example, in a biscuit factory works with material which is substantially different from that processed by a typist in a bank. For the purposes of occupational classification, however, both are typists, the sector of industry in which they are employed having no relevance to the establishment of their occupational category. Similarly, a single industrial concern may employ a number of individuals of widely varying occupations for the purpose of affording a particular service, or

manufacturing a specific product.

Table 2.3 shows the employed population of Great Britain by major occupational groups over the period 1911 - 1971.

The most significant feature of the changing composition of the nation's work force has been the growth of the white collar sector. This growth can be identified in both absolute and relative terms; the total number of white collar workers is increasing, as is the proportion of these workers in the total labour force. The magnitude of these changes, taking place in a relatively short period of time, indicates a real structural change in the nation's occupational patterns, and the aggregate figures indicate a trend which has far reaching implications. This trend has been identifiable in Great Britain for several years and is further evidenced on a world-wide basis, and is apparently inseparable from economic advance. In Germany, for example, from 1882 to 1958, the proportion of white collar employees rose from 8 per cent to 26 per cent, whilst in the United States in 1957, white collar workers exceeded blue collar workers for the first time in history. The phenomenon is further evidenced in Sweden, where, between 1920 and 1960, the white collar ratio rose from 11 to 35 per cent, and in Japan, where the white collar

Table 2.3

The Employed Population of Great Britain by Major Occupational Groups
1911 - 1971

Occupational Groups

No. of Persons Per
Group 1911-1971 (000's)

Major Occupational Groups as a Percentage
of Total Occupied Population

	1911	1921	1931	1951	1961	1971	1911	1921	1931	1951	1961	1971
1. Employers & Proprietors	1232	1318	1407	1117	1140	622	6.7	6.8	6.7	5.0	4.7	2.5
2. White Collar Workers	3433	4094	4841	6948	8479	10405	18.7	21.2	23.0	30.9	35.9	42.7
(a) Managers and Administrators	631	704	770	1245	1270	2085	3.4	3.6	3.7	5.5	5.4	8.6
(b) Higher Professionals	184	196	240	435	718	928	1.0	1.0	1.1	1.9	3.0	3.8
(c) Lower Professionals & Technicians	560	679	728	1059	1418	1880	3.1	3.5	3.5	4.7	6.0	7.7
(d) Foremen & Inspectors	237	279	323	590	681	736	1.3	1.4	1.5	2.6	2.9	3.0
(e) Clerical Workers	832	1256	1404	2341	2994	3412	4.5	6.5	6.7	10.4	12.7	14.0
(f) Sales and Shop Workers	989	980	1376	1278	1398	1364	5.4	5.1	6.5	5.7	5.9	5.6
3. Manual Workers	13685	13920	14776	14450	14020	13343	74.6	72.0	70.3	64.2	59.3	54.8
4. Total Occupied Population	18350	19332	21024	22515	23639	24370	100.0	100.0	100.0	100.0	100.0	100.0

Source: R. Price G. S. Bain.
Union Growth Revisited,
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British Journal of Industrial Relations
Vol. 14, Nov. 1976, p. 346.

proportion rose from one tenth to over a quarter between 1930 and 1963⁽²⁾. Table 2.3 shows that, in Britain, between 1911 and 1971, the number of white collar workers increased from 18.7 per cent to 42.7 per cent of the employed population.

The Clerical Worker Group

Although white collar employment as a whole has increased substantially, there are variations in the extent of the growth of its different groups. Clerical workers form the largest single category of white collar employees, comprising, in 1971, over one third of all white collar workers, and 14 per cent of the labour force as a whole. In 1911, clerical employment in Great Britain accounted for 4.5 per cent of all workers. By 1951, this had risen to 10.4 per cent, and by 1971, to 14 per cent, (See Table 2.3). Current trends indicate that, although clerical workers remain the largest of the white collar groups, their rate of growth has been slowing down, and since 1951, the growth rate of the professional and technical group has been considerably greater. Table 2.4 illustrates the growth rates of the various occupational groups over the period under review, and compares these growth rates with the rate of increase of the labour force as a whole. A comparison of the various growth rates since 1911 shows that the rate of increase of clerical workers

Table 2.4

Growth Rates of Major Occupational Groups in Great Britain
1911 - 1971 (1911 = 100)

	1911	1921	1931	1951	1961	1971
1. Employers & Proprietors	100	107	114	91	93	50
2. White Collar Workers	100	119	141	202	247	303
(a) Managers and Administrators	100	112	122	197	201	330
(b) Higher Professional	100	107	130	236	390	504
(c) Lower Professionals & Technicians	100	121	130	189	253	336
(d) Foremen & Inspectors	100	118	136	249	287	310
(e) Clerical Workers	100	151	169	281	360	410
(f) Sales & Shop Workers	100	99	139	129	141	138
3. Manual Workers	100	102	108	106	102	98
4. Total Occupied Population	100	105	115	123	129	133

Source: Same as for Table 2.3

has consistently been higher than that of any other occupational group, and only in recent years has this rate of growth been overtaken by that of the Professional and Technical workers. According to a Ministry of Labour report in 1965⁽³⁾, as the demand for skilled labour has grown, so the net result of extending the mechanisation of clerical work should be a shift towards a working force with a larger number of professionally qualified people. It seems possible, therefore, that people, who have previously been classified occupationally as clerical workers, may now, as a result of some form of training, have a new job title (e.g. materials controller, bookkeeper, purchasing assistant) and now see themselves as falling within a different occupational group in the Census. To some extent this is due to the fact that the Census form is self-reporting, i.e. the respondent is asked to write in a space the title of his occupation. The likelihood that the development of mechanisation in various work areas would result in a proliferation of job titles was predicted by Bright⁽⁴⁾ and he concludes:-

"Some new kinds of indirect labour jobs requiring a high degree of technical education may be created"

Although the clerical work force has, in recent years, registered a lower increase in numbers than the Professional and Technical Group, they still remain numerically the largest section in the white collar group,

representing approximately 30 per cent of all white collar employment. In 1911 one worker in twenty two was a clerical worker, whilst in 1971, this had increased to one in seven.

Industrial Division of Clerical Work Force

Changes in the occupational structure of the employed population over a period of time are the result of a combination of two factors, the 'industry effect' and the 'occupation effect'. The industry effect is the result of a shift in the distribution of total employment between industries, caused by variations in the relative rates of growth of different industries. The occupation effect is the change in the pattern of employment within individual industries, leading to changes in the demand for certain occupational groups. Some insight into the varying impact of these influences on the growth of clerical employment is identifiable, by examining the differences in the clerical worker proportion by broad industrial sector, viz: Primary Industries, Secondary Industries, Tertiary Industries. The practice of applying consistent boundaries to such a division of economic activity inevitably raises difficulties, since the distinction between the production of manufactured goods and the provision of services is not one which is precise.

Irrespective of the way in which the categories are eventually defined, there will arise variations of interpretation.⁽⁵⁾ The differences to be found among empirical studies reflect the absence of any clear theoretical basis for the traditional threefold division.⁽⁶⁾

Two criteria frequently used as a means of defining tertiary level activity, for example, are closeness to the consumer and the absence of a tangible product. The notion of sector definition according to distance from the ultimate consumer was developed by both Fisher and Clark,⁽⁷⁾ but it is a concept which has numerous loopholes, when viewed against the structure of contemporary service industries (e.g. banking and advertising), many of which are a considerable distance from the consumer. Similarly, an examination of a definition, based on the 'absence of a tangible product', reveals inconsistencies. For example, garages are invariably classified as tertiary, whilst a vehicle assembly plant would be regarded as secondary, and it is almost impossible to make a sharp distinction between the two activities, using the notion of the provision of "tangible products".

For the purposes of analysing the clerical worker group by industrial sector, it is proposed in this study to adopt the United Kingdom Government's Official

classification scheme, outlined by C. D. Harbury.⁽⁸⁾ This scheme was the Government's Standard Industrial Classification (S.I.C.), which groups economic activity into 27 separate orders. Comparisons over time can be achieved by combining the 1968 S.I.C., with 27 orders, with the 1958 S.I.C., which had 24 orders. Primary, secondary and tertiary sectors can be compared, following the methodology of Elliott,⁽⁹⁾ as follows:-

	<u>S.I.C. 1958</u>	<u>S.I.C. 1968</u>
Primary	Orders I and II	Orders I and II
Secondary	Orders III to XVII	Orders III to XX
Tertiary	Orders XVII to XXIV	Orders XXI to XXVII

Table 2.5 shows the industrial distribution of the Great Britain labour force over the period 1921 - 1971, and it illustrates the changing share of total employment accounted for by the various industrial sectors. The most significant feature of this division is the continuing shift of the occupied population away from the primary sector and the growth of employment in the tertiary sector. From employing 12.7 per cent of the nation's work force in 1921, the primary sector industries were reduced, in employment terms, to a labour force accounting for 3.6 per cent of the employed population in

Table 2.5
The Percentage Distribution of the Great Britain Labour
Force by Industrial Sector 1921 - 71

<u>Sector</u>	1921	1931	1951	1961	1971
Primary	12.7	10.6	8.1	5.8	3.6
Secondary	30.5	29.5	39.5	39.1	36.5
Tertiary	56.8	59.9	52.4	55.1	59.9

Source: (1) Occupational Changes 1951-61. Manpower Studies No. 6. Ministry of Labour, London HMSO 1967.

(2) G. Routh op. cit.

(3) R. F. Elliott op. cit.

1971. The reduction in primary sector employment may be contrasted with the rise in levels of employment in the tertiary sector. In 1921, the service sector employed 56% of the work force, and by 1971, this had risen to almost 60 per cent.

An International Labour Office survey⁽¹⁰⁾ has shown that increasing proportions of service sector employees is a feature of the economy of many developed countries. For example, in Belgium, the service sector grew from 38.9 per cent of employment in 1947 to 52.5 per cent in 1970; in Canada, from 45.3 per cent in 1951 to 61.3 per cent in 1971; in France, from 34 per cent in 1946 to 47.8 per cent in 1970, and in the United States, from 53.6 per cent in 1950 to 62.1 per cent in 1970.

Table 2.6 shows how the proportion of clerical workers in the three industry sectors has changed over the period under review. The primary sector, which has decreased in terms of total employment, has increased its percentage of clerical workers from 0.8% in 1921 to 3.6% in 1971. Manufacturing industry also shows an increase in the proportions of clerical workers in employment from 4.8% in 1921 to 11.6% in 1971, and the service sector, which has always revealed a higher than average clerical worker percentage, has increased its proportions from

Table 2.6

Clerical Workers by Industry Sector, 1921 - 71

	Number of Clerical Workers per Industry Sector 1921 - 1971			Clerical Workers as percentage of all employees per Sector		
	Primary (000's)	Secondary (000's)	Tertiary (000's)	Primary	Secondary	Tertiary
1921	21.2	317.9	916.9	0.8	4.8	6.8
1931	19.6	383.3	1001.1	0.8	5.6	7.0
1951	33.9	731.6	1575.5	1.7	9.2	10.9
1961	44.6	924.6	2024.8	2.8	11.0	13.6
1971	37.3	943.5	2431.2	3.6	11.6	17.2

Source: (1) Growth of Office Employment.
Manpower Studies No. 7.
HMSO London 1968.

(2) Census 1971. Great Britain.
Economic Activity Tables

6.8 per cent to 17.2 per cent over the period under consideration.

Industrial Division - Occupation and Industry Effects

Reference has already been made to the fact that two factors interact simultaneously to bring about change in occupational structure, i.e. the 'industry effect' and the 'occupation effect'. As was described earlier in this chapter, the industry effect is the distribution of total employment between industries, caused by variations in the relative rate of growth of industries. The occupation effect is the shift in the pattern of employment within individual industries, caused by technical changes, leading to variations in the range of skills demanded.

It is possible to analyse these two effects by a process of isolating the two inter-related factors, thus allowing them to be considered separately. This is done in the following way. The percentage figure, representing the proportion of the total employment in a given industrial sector taken up by a particular industrial group, is calculated at the beginning of a time period. This same percentage figure is applied to the occupation group total at the end of the period of time, and the hypothetical figure thus produced would represent numbers of the occupation group employed in the overall structure

of the industry group, if the only influences affecting the change had been changes in the size of the industries. A comparison between this supposed structure and the actual structure at the end of the time period makes it possible to isolate, and calculate separately, the occupation and the industry effects.

To illustrate the application of this process, relevant figures for the period 1951 - 71 appear in Tables 2.7 and 2.8. By applying the percentage figure of clerical workers in each sector for a base year (1951) to the corresponding employment totals of clerical workers for a subsequent year (1971), it is possible to isolate the occupation and industry effects. A comparison of this hypothetical 1971 proportion with the actual percentage at the beginning and end of the period is now made. Table 2.7 illustrates the hypothetical clerical numbers, by industry sector, for the year 1971, on the supposition that the distribution for 1971 was the same as in 1951. If the percentage of clerical workers within each sector had been the same as in 1951, they would have accounted for 9.9 per cent of the occupied population in 1971.

Table 2.8 shows the percentage of clerical workers in

Table 2.7
Clerical Workers by Industry Sector 1951 - 71

<u>Industry Sector</u>	<u>1951</u> <u>% Clerical Workers</u>	<u>1971</u> <u>Occupied Population (000's)</u>	<u>1971</u> <u>Hypothetical No. of Clerical Workers (000's)</u>
Primary	1.7	877	14.9
Secondary	9.2	8896	818.4
Tertiary	10.9	14597	1591.1

Note Hypothetical percentage of clerical workers = 9.9 (1591.1 = 9.9% of 14597)

Source As for Tables 2.5 and 2.6.

Table 2.8

Occupation and Industry Effects, 1951 - 1971

Clerical Workers as percentage of Total Employment	1951	1971	Hypothetical 1971	All Changes		Changes in Sector Size		Changes within Sectors	
				$\frac{\text{Col.2}}{\text{Col.1}} \times \frac{100}{1}$	$\frac{\text{Col.1}}{\text{Col.1}}$	$\frac{\text{Col.3}}{\text{Col.1}} \times \frac{100}{1}$	$\frac{\text{Col.1}}{\text{Col.1}}$	$\frac{\text{Col.4}}{\text{Col.5}} \times \frac{100}{1}$	$\frac{\text{Col.4}}{\text{Col.5}} \times \frac{100}{1}$
(1)		(2)	(3)	(4)		(5)		(6)	
10.4		14.0	9.9	135		95		142	

1951 (col. 1), 1971 (col. 2) and, as was shown in Table 2.7, the hypothetical percentage for 1971 (col. 3). Using these figures, the occupation and industry effects are isolated, and their influence measured by index numbers. The base for these numbers is 100 for the year 1951, and column 4 represents the increase in proportion due to all changes. This is calculated by expressing the 1971 proportion as a percentage of the 1951 figure. The industry effect is isolated in column 5, and is obtained by stating the hypothetical 1971 figure as a percentage of the actual 1951 figure. A similar process is applied to calculate the occupation effect, using the 'all changes' index number and the industry effect index number (see col. 6).

We deduce, therefore, that, had the only factor applying been change in the size of the industry sectors, the proportion of clerical workers would have reduced. Similarly, if no other factor had been at work, the changes within industry sectors would have increased the relative proportion of clerical workers by 42 per cent. Changes in the size of industry sectors moved against an increase in the proportion of clerical workers, thus the major influence has been the occupation effect.

Sex Composition

One of the most significant features of the composition of the clerical worker group is the high concentration of women, compared with their relatively low representation in many other occupation groups. Table 2.9 traces the increasing proportions of female employees in the various occupational groups over the period 1911 - 1971. The table shows that, although since 1911 women have increased their participation in the total labour force from 29.6 per cent to 35.6 per cent, there are variations in the proportion of female employees in the different occupational categories. In 1911, 29.8 per cent of all white collar workers and 30.5 per cent of all manual workers were female, but as the table illustrates, the female share of these two groups has diverged. By 1971, the female share of the manual labour force had remained almost constant at 29 per cent, while the female share of the white collar labour force had risen to 46.5 per cent. The occupational groups which reveal the greatest rise in female worker proportions are clerical workers, sales and shop assistants. The female share of the 'lower professionals and technicians', however, fell from 62.9 per cent in 1911 to 52.1 per cent in 1971, and this group with clerical workers and sales and shop assistants comprise the only three with more than 50 per cent female concentration.

Table 2.9

Percentage of Female Workers in Major Occupation Groups 1911 - 1971

	1911	1921	1931	1951	1961	1971
Occupational Group						
1. Employers & Proprietors	18.8	20.5	19.8	20.0	20.4	23.7
2. White collar workers	29.8	37.6	35.8	42.3	44.5	46.5
(a) Managers and Administrators	19.8	17.0	13.0	15.2	15.5	16.7
(b) Higher Professional	6.0	5.1	7.5	8.3	9.7	9.4
(c) Lower Professionals & Technicians	62.9	59.4	58.8	53.5	50.8	52.1
(d) Foremen & Inspectors	4.2	6.5	8.7	13.4	10.3	11.4
(e) Clerical Workers	21.4	44.6	46.0	60.2	65.2	69.3
(f) Salesmen & Shop Assistants	35.2	43.6	37.2	51.6	54.9	58.7
3. All Manual Workers	30.5	27.9	28.8	26.1	26.0	29.0
(a) Skilled	24.0	21.0	21.3	15.7	13.8	14.7
(b) Semi-Skilled	40.4	40.3	42.9	38.1	39.3	42.6
(c) Unskilled	15.5	16.8	15.0	20.3	22.4	27.5
4. Total Occupied Population	29.6	29.5	29.8	30.8	32.4	35.6

Source: (1) G. S. Bain & R. Price op. cit.
(2) Census Great Britain, 1971.
Economic Activity Tables.

Since over two thirds of clerical workers are female, it may be deduced that this group will display some of the major characteristics of the female labour force.

(11)
According to Bain:-

"The major characteristics of female employment are well known: most women do not participate continuously in the labour market because of marriage and family responsibilities, and they generally are supplementary earners in the sense that their pay is not the family's main source of income but merely supplements the earnings of their husbands. It is often suggested that these characteristics tend to reduce women's commitment to work".

According to Nancy Sear⁽¹²⁾, one of the reasons for the high proportion of women in clerical work is not that there are certain features of clerical work which are particularly suited to women, but that it is their exclusion from other occupational spheres which accounts for their disproportionate representation in routine office work. This concentration of females in a limited range of occupations is confirmed by the results of the 1971 Census of Population, which showed that 29.1 per cent of all females in employment were clerical workers, 23.2 per cent were 'service sports and recreation' workers, 11.9 per cent were professional and technical workers and 10.7 per cent were sales workers. These four occupational orders, in total, accounted for nearly three quarters of all female employees.

Industrial analysis of female employment shows a similar pattern of most women being employed in a small number of industries. Over one half of all female employees are employed in three out of the twenty seven main industrial orders - the distributive trades, professional and scientific services and miscellaneous services.

Among young people entering employment, the trend is similar. Table 2.10 shows the class of employment taken up by young people aged 15 - 17 in 1972. The table shows that of all girls entering employment, over one third take up some form of clerical work. Many girls who take up clerical work are in fact educationally qualified to embark upon several other careers, including for example, work in engineering. Clerical work, however, is traditionally regarded as 'respectable', whereas a career in engineering carries the societal label of unsuitability for the female worker. The lack of planned training schemes for young people who have entered clerical employment was highlighted in a report⁽¹³⁾, which revealed that only 8 per cent of younger office employees were being trained under planned training schemes. This suggests the possibility, that clerical work might be undertaken by many female employees, who are capable of assuming a wider range of responsibilities and who, because of the absence of planned training programmes,

Table 2.10

Class of Employment entered by Young Persons Aged 15 - 17
in 1972, Great Britain

Employment Entered	Boys (000's)	%	Girls (000's)	%
Apprenticeship to skilled occupation	100.2	38.7	18.0	7.9
Employment leading to Professional Qualifications	3.4	1.3	3.9	1.7
Clerical Employment	18.4	7.1	78.3	34.3
Employment with planned training (apart from industry training) not covered above	42.6	16.5	40.5	17.7
Other Employment	94.3	36.4	87.5	38.3
Total	258.9	100.0	228.2	99.9

Source: Women & Work: A Review.
Dept. of Employment,
Manpower Paper No. 11
HMSO 1975 p. 5.

are not offered the opportunity to follow a developing career pattern.

The high concentration of females in the clerical worker category can give rise to the furtherance of the view, that this occupation can be designated as 'women's work' and, by inference, in some way inferior. King⁽¹⁴⁾ has observed that society views certain characteristics as being 'masculine' and others as being 'feminine'.

Furthermore he identifies the tendency for society to judge masculine characteristics as being more socially desirable and feminine characteristics as less socially desirable. It seems possible, therefore, that this tendency will have some influence on the behaviour of employers in the policy of selection for specific occupation roles, and on the 'image' which these occupations have in society in general. Clerical occupations may be regarded as socially undesirable, and women may be perceived as being more likely to possess such characteristics. According to King:-⁽¹⁵⁾

'None of us is free from this tendency to classify and categorise information about events and people, but it is as well to be aware how far our stereotyped models may depart from reality'.

It is of some significance that, since King's pamphlet was published in 1974, there have been some quite radical changes in the general attitudes to the role of women in employment. Various research studies⁽¹⁶⁾ have shown that

there is no substance to the traditional view that women are less independent, are less able to deal with certain kinds of problem situations and are less assertive than men. In an evaluation of power and achievement needs, Wagner & Swanson⁽¹⁷⁾ found no significant differences between males and females, and that all people, irrespective of gender, were equipped to start and proceed through life with a similar range and pattern of needs and drives.

The question arises as to what extent does clerical work rely on abilities or skills which are predominantly female. Considerable evidence exists to support the view that there are differences between the average performance of the two sexes over a range of activities⁽¹⁸⁾.

Unfortunately, it is not possible to differentiate between abilities which are innate and those which arise from the different patterns of socialisation at home and at school, to which both boys and girls are exposed. In the former case, the ability differences would be virtually permanent characteristics of our society; in the latter case they would vary in accordance with social and educational change. One general finding is that females perform better than males on arithmetical tasks, clerical skills and tasks requiring a degree of

fine manual dexterity, whilst males show a higher performance on mathematical problem solving, on mechanical tasks and on practical abilities. Differences in physical strength between the sexes are unlikely to have any direct bearing on abilities in the field of clerical work. Variations in work performance associated with the menstrual cycle have been investigated by several researchers and, although no consistent work differences are seen to be directly attributable to the menstrual cycle, Dalton⁽¹⁹⁾ suggests that a decrease in judgement may be related to the four pre-menstrual and four menstrual days of the cycle. Conversely, Smith⁽²⁰⁾, in a study of women workers, found that there were no significant work differences associated with the menstrual cycle, and that any reduction in performance at the pre-menstrual phase of the cycle was compensated by increased performance at another stage of the cycle. The implications of these findings must inevitably have some bearing on the interpretation of the work performance of clerical employees, particularly those whose tasks are of a routine and repetitive nature, where productivity criteria may be applied.

The Department of Employment Paper⁽²¹⁾, which reported on Women and Work in 1974, observed that females perform

better on average than males on verbal tests, whereas males perform better on average than females on visual tasks. Commenting on these differences in ability in relation to clerical work, the paper states:-

"The superiority of girls over boys on the perceptual tasks that underlie reading skills may offer some explanation for their superiority in arithmetic and in clerical tasks". (22)

Tests which attempt to measure ability differences between males and females invariably condition their findings by referring to the extent of overlap in ability which has not been noted. It seems probable that ability differences, reinforced by cultural and social pressures, will account for the high concentration of females in clerical employment.

The Composition of the Clerical Work Force

This chapter has shown that the occupation group clerical worker now accounts for almost one eighth of the occupied population of Great Britain, and has increased substantially over the past fifty years. The occupation 'clerical worker' includes various job titles and these according to the 1971 Census of Population are:- clerks and cashiers, office machine operators and typists, shorthand writers and secretaries.

The total numbers employed in each of these job classifications is shown in Table 2.11.

The table shows that the largest group within the clerical worker category is 'clerks and cashiers'. Included in this category are all jobs which have the term 'clerk' in their title, with the exception of occupations which use this term in a special sense, e.g. Clerk in Holy Orders. Also included in the clerks and cashiers group are:-

"persons keeping records of cash; collection of cash or issuing tickets at theatres etc. collecting cash by door to door collection; taking reading of meters and emptying of coin boxes; performing all types of office work".⁽²³⁾

Just over one fifth of clerical workers are shorthand writers, typists or persons acting as secretaries. In practice, the skills utilised in these three jobs will overlap, so that most secretaries are trained in shorthand and typewriting, and the majority of shorthand writers will be trained typists. One study⁽²⁴⁾ has examined the nature of the tasks and duties performed by secretaries, and, on the basis of a survey of a sample who were interviewed, concluded that:-

"The secretary's role is changing, because new types of duties with high frequency of performance and new kinds of knowledge have so recently evolved, that they did not appear in the previous studies". (24)

Some features of the nature of the changes which are affecting the secretarial role have been analysed more recently by Vinnicombe⁽²⁵⁾, who commented:-

"..... as secretaries move up the hierarchy, they tend to undertake significantly more administrative tasks than mechanistic ones".

Table 2.11 also shows that the group 'Office machine operators' accounts for almost five per cent of all clerical workers, and includes operators of machines such as punch card and accounting equipment and reprographic machines, but excludes the operators of teleprinting and stenographic machines. Table 2.11 illustrates also the extent to which the various job titles are divided according to sex of worker. Ninety five per cent of shorthand typists and secretaries and eighty six per cent of office machine operators are female. Females also account for almost two thirds of the clerks and cashiers.

Clerical Workers (Sub-Groups) Inter-Census Changes 1951 - 1971

In 1911, the only category of clerk recognised in the Census was the 'commercial or business clerk', those employed in the public sector being grouped with 'officials'. By 1951, the categories of shorthand typists,

Table 2.11

Job Title of Clerical Workers by Sex, 1971

Job Title	Male (000's)	Female (000's)	Total (000's)	% Total Clerical Workforce	% Female
Clerks, Cashiers	925	1541	2466	72.3	62.5
Office Machine Operators	23	147	170	5.0	86.5
Typists, Shorthand writers, Secretaries	<u>38</u>	<u>738</u>	<u>776</u>	22.7	95.1
Total	1016	2396	3412		

Source: Census, 1971, Great Britain.
Economic Activity Tables, Part IV
Table 35. Occupation by Sex

book-keepers and other office machine operators had been distinguished, but in 1961 the division between clerks, book-keepers and office machine operators was abandoned. Thus, although long term comparisons are impossible because of change in job titles, the years 1951 and 1971 are, broadly speaking, comparable, since the classification system for this group is virtually unchanged.

Table 2.12 shows the shifts in the composition of the clerical work force over the period 1951 - 1971.

During the period under consideration, clerical workers as a whole increased by 46 per cent. Whilst shorthand typists, clerks, cashiers and book-keepers increased at a rate reflecting that of the group as a whole, the office machine operators show an increase of 115 per cent for this period. Commenting on the increasing numbers of office machine operators in the United States, Harms⁽²⁶⁾ gives reasons for the disproportionate growth of office machine operators. In situations where machines are new resources, and not substitutes for the resources of existing workers, the machines may be required to carry out functions which existing employees cannot perform. For example, such machines might be making available information, which was not considered possible until the equipment had been developed. In

Table 2.12

Composition of Clerical Work Force.
Inter-Census Change 1951 - 1971

<u>Job Title</u>	1951 (000's)	1971 (000's)	% Change '51 - '71
Shorthand Typists	559	776	+ 39
Clerks, Cashiers Bookkeepers	1703	2466	+ 45
Office Machine Operators	79	170	+115
Total	2341	3421	+ 46

Source: Census, 1951 & 1971. Great Britain,
Economic Activity Tables

such cases, new jobs are created, in order to operate these machines. A second reason for the increase in the number of office machine operators is that the introduction of new administrative functions, requiring more clerical labour, increases the demand for machinery (and thus machine operators) to perform some of the existing routine functions more efficiently. Harms concludes that:-

"The substitutability of machines for office employees may form only a part of the reason for the growth of the office overhead, which required both more machines and more men and women".⁽²⁷⁾

It seems likely that the increased use of computer systems over the period 1951 - 1971 has had some influence on the increase in the employment of office machine operators. The installation of a computer initiates the demand for machine operators, both for the operation of the computer and the preparation of data prior to processing. It is estimated that machine operators, whose jobs are directly related to the work of a computer system, increased by 50 per cent between January 1969 and January 1972.⁽²⁸⁾

The installation of a computer can be deemed to create two broad categories of clerical staff:- machine operators and systems analysts/programmers. Whilst the emergence of this latter group can be seen as increasing the career prospects for some clerical workers, leading to almost professional status, the machine operators frequently see their job as unpleasant, boring and

exacting, in that it requires speed and accuracy often under pressure of a time factor.⁽²⁹⁾ In 1972 it was estimated that, of the 136,000 jobs which had been created as a result of the installation of a computer, over 54 per cent were in the machine operator group.⁽³⁰⁾

Conclusions

This chapter has attempted to highlight the importance of the problem by examining the significance of the growing numbers and proportions of clerical workers. This increase in the office work force was attributed to two main causes:- (1) an industrial effect and (2) an occupation effect. A reflection of the industrial effect is that a greater proportion of people than ever before are employed in the service sector of economic activity. This has important implications for a study of productivity in the white collar field. It is now generally accepted that productivity in services has been growing less rapidly than in industry. Although this testifies to the strength of manufacturing productivity, which has permitted the shift of workers to services, it also raises problems. Unless the continuing increase in the size of the service sector is to retard productivity increases in the economy as a whole, attention will need to be focussed on the development and application of productivity criteria, which are appropriate to the nature of service sector activity.

The occupation effect means that, in manufacturing industry, a higher proportion of the work force are employed as office workers, thereby contributing increasingly to the indirect cost 'administrative overhead'. This chapter has attempted to indicate the significance of these trends, and as a prelude to suggesting means of overcoming some of the problems linked to them, the chapter has commented on various statistical aspects of clerical employment, in order to illustrate the main characteristics of this group of workers. The next chapter will complement the statistics, by examining some of the theories which have been put forward, in an attempt to form a concise and logical definition of the term 'white collar worker', so that the productivity concepts which are to be developed will be seen to be appropriate to this group of workers.

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CHAPTER THREE

THE DEFINITION OF WHITE COLLAR WORKERS

Introduction

The productivity of an office depends to a considerable extent on the personal productivity of the individuals whose tasks and duties comprise the clerical or information processing function. This chapter is concerned with the roles which clerical workers fill in the occupational structure, and the implications that these roles have for them as producers. It is proposed therefore to consider some of the salient features by which white collar workers are distinguished from blue collar workers, and to isolate some of the special characteristics of white collar work, in order to show that the theoretical base of this study recognises and takes into account the particular identities of this work group. The chapter seeks initially to establish a logical and consistent case for the white collar/blue collar distinction, and does this by a review of the main schools of thought that are implied by the terms 'blue collar' and 'white collar'.

There is evidence which illustrates that blue collar and white collar work have distinct features, which can mean that factory workers and office workers react differently

to technological change or to changes in their work methods or conditions. The office workers studied by Shepard⁽¹⁾ adapted to changing technology in a different manner to the factory workers of Blauner's⁽²⁾ study. Similarly, Champion⁽³⁾ concluded that the introduction of a computer into a bank organisation produced results which were inconsistent with previous studies of mechanisation or automation in factories. Studies such as these illustrate the need for a deeper understanding of the nature of white collar employment, prior to developing a productivity theory which will be appropriate to the special characteristics of this group.

Clerical Workers and the White Collar Group

The term 'clerical worker' or 'clerk' is one which is surrounded by a great deal of confusion, often leading to vagueness and misunderstanding. No matter how the term is eventually defined, it is unlikely to be entirely satisfactory, and there will always be groups of workers who are borderline cases, and may or may not fulfil the requirements of the definition. An additional complication is the fact that there are so many employees who carry out clerical work as part of their normal duties, that the point on the dividing line at which a worker becomes so classified is obscure. For example, the clerical

work carried out by a foreman or storekeeper is of secondary importance to his main function, and such occupations are excluded from the clerical worker group. On the other hand, occupations such as secretary or accounting machine operator, the duties of whom are mainly clerical, are classified as 'clerical' since this is the type of work with which they are mainly concerned. Borderline cases are more likely to arise in smaller offices, where duties are less specialised than in a larger firm. Current analyses of occupational trends and the related literature classify clerks within the broader category of 'white collar workers!'⁽⁴⁾

Early definitions of white collar workers emphasised differences of social status and methods of remuneration, rather than the varying nature of the work undertaken or the authority exercised in clerical work or duties performed. This is evidenced by the report of the 1911 Census, in which employees were sub-divided into "wage earners" and "salaried persons". Wage earners were defined as:-

"Those engaged in the manufacturing process, in cleaning, repairing or maintenance work, in despatch or in the immediate supervision of operative staff whether paid wages or salaries" ⁽⁵⁾

Salaried persons were defined as "clerks, typists, salesmen, travellers, buyers and other management staff". This association of clerks with management staff is further evidenced in the United States Bureau of the Census,⁽⁶⁾ which distinguished between workers in management (salaried persons) and workers in production (wage earners). In the 1940's these descriptions were changed in the United States to "production" and "non-production" workers, whilst in the U.K. the categories of "productive operatives" and "administrative technical and clerical employees" evolved.

The problems of definition emerge as twofold: firstly, that of transforming the generally understood, but essentially vague, label 'white collar' into a concept which is defined sharply enough to be used for a productivity study; secondly, demonstrating that the productivity model suggested in this study can be applied to a particular group of employees, and thus provide an analytical framework for the evaluation of office operations. The meaning of the term 'white collar worker' varies according to numerous interpretations. Bain & Price⁽⁷⁾ emphasise this problem of accuracy in definition by pointing out:-

"White collar employee is a vague term. Its meaning differs between countries and even within a single country, it often means one thing to one person and something else to another. Indicative of the confusion surrounding the term is the large number of synonyms which it has acquired, "salaried employee" "office worker", "non-manual worker" and "black-coated worker". As mere words these phrases are interchangeable, as logical entities they are not. For these various catchwords imply conflicting theories which suggest that "white collar employees" are to be defined either by their method of payment, their place of work, the type of dress they wear to work or the type of work they do".

The interpretations implied by these individual descriptions are to some extent artificial, in that the term "salaried employee" becomes meaningless when considered in conjunction with the large number of occupations which are remunerated by salary. Similarly with the term "office worker", one must consider the wide range of occupations and skills which exist in a place of work which is known as an office. Thus to attempt a consistent definition based on their place of work or method of payment would be inconsistent and meaningless.

The Manual/Non Manual Approach

Any division of the occupational structure based on manual/non manual distinctions would prove difficult, in that the range of occupations is extremely varied, and there would be numerous problems in approaching contemporary job descriptions on this basis. Nevertheless the manual/non manual or brain/brawn approach is a

distinction which is historically popular. Emil Lederer⁽⁸⁾, the German sociologist, took the view that white collar work had some particular intellectual characteristic, whereas blue collar work was primarily identified by physical labour. Numerous writers share Lederer's view of the intellectual nature of white collar work. One American approach states that:-

'white collar workers are those who make their living not with their hands but with their heads'.⁽⁹⁾

Lederer's view is understandable, if account is taken of the conditions and native employment in the early 20th century. During his lifetime, it was most probably the case that the bulk of manual work involved physical labour, and office work required a certain level of literacy which was not yet widespread. Lederer identified these "brain workers" as a heterogeneous group, who had formed as a result of the concentration of industry and the development of enterprises into large scale organisations. He commented on the apparent incompatibility of their middle class style of life on the one hand, and their low income on the other.

Other writers interpret the intellectual nature of white collar work as stemming from the various ways in which firms are organised. Thus, commenting on the division of labour, Robertson states:-

"It is obvious that the broad advantages of the division of labour apply at least as forcibly to labour with the mind as to labour with the hands".⁽¹⁰⁾

The official recognition given to this brain/brawn distinction is referred to by Bain and Price,⁽¹¹⁾ who comment on the concept in Austria and Germany of the "Angestellte" (salaried employee), which is embodied in the pattern of legislation under which white collar workers are employed. In Britain, with the exception of the Truck Acts, the law does not distinguish between manual and non-manual workers.

The main weakness in the manual/intellectual distinction is that, when it is viewed against the wide range of skills which are required for different types of work, it becomes clear that the allocation of labels of either 'brain' or 'brawn' to specific occupations is not practicable. Few, if any, manual jobs are devoid of any mental application, and it would be rare to find a white collar job which did not rely on some degree of physical effort. Modern occupational structure is so varied in the demands that it imposes, that the elements of every job are, to a lesser or greater extent, a combination of physical and mental effort. The inconsistency of the concept is exemplified if a comparison is made, for example, of the work of a key

punch operator and a skilled engineer. The most common allocation of these operators would be that of white collar and blue collar respectively, and it is most unlikely that the work of these punch card operators would require a greater intellectual effort than that of the engineer. In spite of the fact that division of labour and mechanisation have reduced a considerable volume of white collar work to simple routine operations, the nature of the work is still regarded by many as brain work.

The intellectual nature of white collar work in relation to other work is a notion which, although illogical, is still held and is crystallised in the view that,

"A girl working an adding machine is a brain worker and a girl working a sewing machine is not". (12)

It seems, therefore, that any classification of jobs based on the intellectual/manual distinction would not be valid, when considered against the structure of contemporary occupations. The distinction does not conform to the commonly accepted interpretations of the blue collar/white collar groupings, and to attempt to embody such a concept in a productivity study of office occupations would raise problems of inconsistency and impracticality.

The Class Approach

The class theory of occupational grouping provides a somewhat different definition of a white collar employee. The main exponent of class theory is Karl Marx, who recognised the tendency for an increase in white collar workers that would follow an expansion of capitalist production.

"The more developed the scale of production, the more extensive, though by no means in the same proportion, are the commercial operations of industrial capital, and therefore also the labour and other circulation costs necessary for the realisation of value and surplus value. The employment of commercial wage workers, who work in the office proper, thus becomes a necessity". (13)

Marx did not give detailed consideration to the "commercial wage workers", but concentrated more on the role of bureaucracy in the political context. Nevertheless, he interprets them as comprising a class which forms an intermediate level between capitalists and the proletariat, and which cannot be seen to perform a specific economic function. He identifies their role as vacillating between the workers and the capitalists; they conform to the way of life and attitude of the latter, whilst they are obliged, as a result of low wages, to become part of the labouring classes. Marx predicted the decline of the middle class, by forecasting that the spread of education would increase the supply of the people able to carry out commercial labour, and as a result

wages would fall and they would eventually become absorbed by the proletariat.⁽¹⁴⁾

Marx's failure to work out in detail a class theory which took account of the existence of a group, which clearly did not fit easily into either of his classes, was considered by Schumpeter⁽¹⁵⁾ to be "one of the weakest links in the Marxist chain".

The definition of white collar workers on the basis of class identities is based on the notion, that the nature of their work is concerned with the exercise of authority and, as a result of this, they identify themselves with the attitudes and interests of the ruling or employer class. Thus, as a result of their occupations, they become alienated from the working class, and although taking in many attributes of the employer class, they are nevertheless employees with limited incomes, and as a result they comprise an occupational group which represents a class in its own right. The definition of an occupational group in terms of a discrete section of social strata can be confusing, in that it can be interpreted in one of two ways. White collar workers can regard themselves as a separate class without in fact forming a separate class. This is the confusion of the fact of class with the consciousness of class, which is a different phenomenon.

According to Tawney⁽¹⁶⁾:-

"The fact creates the consciousness, not the consciousness the fact".

In the case of white collar workers, the extent to which they form part of the working class can be said to rely on two characteristics, namely, that they are employed, and that they are separated from the ownership and control of the means of production. It seems, therefore, that the structural position of the white collar worker is becoming more and more identifiable with that of the wage earner. Both groups are "propertyless contractual labour"⁽¹⁷⁾, the income levels of each group have drawn closer together, and division of labour and mechanisation have produced similarities of work styles.

The main support for the definition of white collar workers as an independent class is based on the consciousness of class which this group is observed to have. This awareness of class is manifested in the traditional reluctance to join the Trade Union movement, the adoption of the attitude and values of the employer, the prestige associated with working in close proximity to authority. This consciousness of being in a different

class can be regarded as a justification for defining the white collar group on a class basis.

The main weakness of defining an occupational group according to broader social divisions is that the two, whilst possibly coinciding on occasions, do not necessarily do so all the time. Classes may vary between different races and cultures according to widely differing criteria. In the United Kingdom, a single class could be comprised of a wide variety of occupations and thus would cut across divisions in occupational groupings. To apply the concept of class distinctions to occupational categories is to oversimplify the theory of class, which is more complex than the distinction between different types of occupation. Class according to Tawney relates:-

'Not to this or that specific characteristic of a group, but to a totality of conditions by which several sides of life are affected'.⁽¹⁸⁾

To apply the wider connotation of class to the more specific characteristics of a section of the occupied population is valid, but to claim class identity as a result of occupation alone is to omit many other distinguishing features of class. Some evidence suggests that white collar workers are sharply divided

when asked of which class they are part. Hamilton⁽¹⁹⁾ found that of a sample of white collar workers questioned in the U.S.A., about one half identified themselves as working class. Of particular significance in Hamilton's study is that those who identified with the working class did so on account of their origins, (social class of parents) rather than because of the nature of their occupations. When compared with the group who were described as 'Middle Class identifiers', it emerged that the middle class identifiers were ahead of the other workers with regard to income. They regarded themselves as having made greater economic progress in recent years, and had high expectations of further career development. Hamilton's conclusions were that the traditional white collar occupations did not correspond with the conventional lines of class theory. Increased recruitment from working class origins to white collar employment has resulted in the importing of working class ideology into the middle class and the development of "attitudinal cleavage" within the middle classes.

A study by Mercer and Weir⁽²⁰⁾ argued that there is an increasing similarity in the attitudes and behaviour of both blue collar and white collar workers, which has developed as a result of the similarity of the conditions

of work of both groups. Thus blue collar workers, with higher wages than formerly, greater security of employment, the benefits of sick pay schemes and attractive holiday arrangements and, in some cases, more pleasant physical conditions of work, are able to progress to a more middle class way of life, and as a result, adopt middle class attitudes. This "embourgeoisement" of blue collar workers was the theme of a study by Goldthorpe,⁽²¹⁾ who examined the influence of high incomes on groups of manual workers. Mercer and Weir examined certain aspects of the white collar worker's work situation which are contributory factors to the image he has of himself in the class structure, and concluded that

"the lower level white collar worker maintains a social perspective which, while it can no longer be equalled with the stereotype of the 'middle class bureaucrat' is far from conforming to that of the 'proletarianised worker'".⁽²²⁾

It seems, therefore, that the processes of embourgeoisement and proletarianisation will lead to a convergence of classes, where either it is no longer possible to distinguish between 'working' and 'middle' classes or, alternatively, such a situation may permit the emergence of a separate class which has its own ideology. In this context, it would be conceivable to define white collar workers in accordance with their own class, which

has its own interests and problems. This "white collar class" will be likely to identify itself more closely with the attitudes of and the social situation of blue collar workers, than with those of management. Not totally adopting the collectivist ideology of the blue collar worker, this 'white collar worker' class will place greater importance on security of employment rather than the more individualist behaviour patterns of white collar workers.

The relationship between white collar workers and social class is further evidenced by the fact that the U.K. educational system exercises a bias in favour of white collar work, to the extent that this can occasionally be contrary to the interests of the pupils. One report quoted by Banks⁽²³⁾ states:-

"So far as young people themselves are concerned, particularly in these days of machines, there is little doubt that many prefer and would prefer, practical work in life. The superiority of the blackcoated occupations rests no doubt in the main on the fears, deep seated in the minds of parents, and not absent from the minds of young people themselves, of the insecurity which in the past has so often been found attaching to industrial employment".

The influence of schools as an instrument of occupational choice is referred to by Banks, who comments that the academic curriculum of grammar schools does not prepare pupils for any kind of practical work, and that grammar

school staffs pass on to the pupils a despising attitude to manual work and invest white collar work with:-

"a spurious halo of prestige"(24)

According to Banks, the reason that more grammar school boys preferred commercial-clerical posts to industrial employment was that the white collar sector offered greater prospects of advancement, and the low status of manual work is attributable, not to the school, but to its position in the economic structure of England.

Thus the schools claimed that they were merely echoing the attitudes and values of industry and employers rather than imposing standards. As long as industry maintained a policy of promotion from the white collar ranks, then it would be valuable for pupils to seek these positions as first choice. According to Lord Eustace Percy:-

"In nearly all industries the road to management and control lies through the office side, it is the clerk, not the man at the machine, who carries the marshal's baton in his knapsack". (25)

White Collar Workers and the Theory of Bureaucracy

The notion of the role of the white collar worker as an extension of that of the employer is supported, if account is taken of the development of bureaucracy in an organisation. Viewed from a historic angle, bureaucracy can be interpreted as the increasing

subdivision of the functions which the individual entrepreneur traditionally performed in the course of his daily business. These functions can be defined as commercial, administrative, and staff functions and, as the enterprise develops, these functions become more specialised and are delegated to white collar employees. According to Mills:-

"The organisational reason for the expansion of the white collar occupations is the rise of big business and big government, and the consequent trend of modern social structure, the steady growth of bureaucracy". (26)

One essential aspect of much of white collar work is the degree of bureaucratisation, with its emphasis on the role rather than the individual employee. In a bureaucratic organisation, many standardised and impersonal working relationships resemble those of the shop floor in a factory, and the traditional personalised relationship with management, which many white collar workers have enjoyed, is replaced by impersonal contacts, where employees are regarded less as individuals, and more as members of different employee grades. The extent to which a firm's administration is bureaucratised has therefore a considerable influence on the work experience of the white collar employee and, in this respect, can contribute to the definitional problem. High levels of bureaucracy are more likely to be found

in large organisations, whilst the small firm will probably adopt an almost paternalistic, caring role with regard to its white collar employees. In some cases this paternalism can extend to all employees.

Reinhard Bendix⁽²⁷⁾ defined bureaucracy as,

"routine procedure in administration"

and attempted to measure the degree of bureaucracy in industry by establishing an "A/P ratio" i.e. the number of administrative (or salaried) employees, as a proportion of the number of production workers in the manufacturing industries of several countries. He concentrated on the process of the substitution of white collar employees for the employer group, and identified the causes of increasing numbers of administrative employees as "industrialisation" and changes in organisation. He concluded that the greater proportions of white collar employees are in the most capital-intensive industries and in industries with a more highly specialised technology, and he considered this in relation to Clark's theory⁽²⁸⁾ on the shift of the working population among the primary, secondary and tertiary sectors of industrial activity.

The definition of the white collar worker as an

extension of the arm of bureaucracy was condemned by Schumpeter, who was concerned that:-

"The bureaucratic method of transacting business and the moral atmosphere it spreads doubtless often exert a depressing influence on the most active minds. Mainly this is due to the difficulty inherent in the bureaucratic machine of reconciling individual initiative with the mechanics of its working". (29)

Against this viewpoint, there must be considered the advantages of specialisation and the division of labour, which arise from the optimal utilisation of trained administrators and other staff specialists. Accepting, therefore, that industrialisation requires an increasing number of employees who possess highly specialised skills, it seems logical that such a demand will be met by the individuals who otherwise would have been entrepreneurs, but as a result of the dominance of larger firms become instead employees, (white collar employees) and earn their livelihood as co-ordinators of the elements of the economic system. Bureaucracy develops as the average size of each unit of economic activity increases and as a result, a higher proportion of white collar employees are required to co-ordinate and manage the specialised component parts of the organisation.

The weakness of any argument which uses the idea of

bureaucracy as a definitive element of white collar workers is that, whilst there is a close causal connection between increasing proportions of white collar workers and the development of bureaucracy in an organisation, white collar workers are also employed in increasing proportions in organisations which are essentially paternalistic in their relationship with their employees. In addition, in firms in which there is a high degree of bureaucracy, there nevertheless is substantial scope for the employment of personal aides e.g. private secretaries who adopt a personal servant role which encompasses the traditional concepts of loyalty, confidentiality and a fostering of the interests of the employer. The bureaucratic and impersonal atmosphere of large modern businesses, together with the extension of mergers and takeovers, have contributed substantially towards the disappearance of the master/ clerk relationship of the 19th century, referred to by Balzac as,

"devotion on one side and trust on the other". (30)

Definition by Function

This approach attempts to define the white collar worker in accordance with certain objective aspects of the work

which is undertaken, rather than any subjective evaluation of the qualities of the worker. One of the first writers to postulate this concept was Maurice Halbwachs,⁽³¹⁾ who differentiated between white collar and blue collar work by the extent to which the latter did not manipulate inert matter, but was concerned with the application of rules relating to persons and mental activities.

These rules were drawn up by the owners or managers, who then delegated to the white collar worker a degree of discretionary power, which determined his place in the hierarchy of the organisation. This view is supported by Fritz Croner,⁽³²⁾ who interprets the function of the white collar employee as an extension of the work of the employer, and is distinguished from the blue collar worker by the extent to which certain functions are delegated. Croner rejects entirely Marx's view of social hierarchies and other subjective notions such as 'brain work' and 'middle class work', and instead relies on his own theory of delegation, which to some extent is contradictory, in that it implies a concept of authority delegated by the employer.

Croner identifies four specific characteristics of white collar work and claims that they cover the whole range of

this work. These features are Supervisory, Planning, Administrative and Commercial, and the reason that they are carried out by a special kind of worker is that they were originally carried out by the employer. The growth in the size of firms results in a range of duties being delegated from the employer's personal work, to be assigned to white collar workers, who then become responsible for ensuring that the duties are discharged. Thus, Supervisory, Planning, Administrative and Commercial duties were originally the functions of the employer, and, under the theory of delegation, it is by allocating these duties to employees that the category 'white collar worker' is formed.

One criticism of Croner's theory which Croner himself makes is that the range of duties it covers is not limited to white collar work, since much of the work of blue collar workers arises as a result of the division of labour, i.e. the process of the individual entrepreneur taking on workers as his business develops. But Croner claims that one of the unique aspects of white collar work is that it develops only after the employer/wage earner relationship has been established, and this has a different background (the employer background) to a simple division of labour. This, according to Croner, is exemplified if consideration is given to simple office tasks, tasks which have been

virtually de-skilled as a result of division of labour, but which are invariably classed as 'white collar' because they were originally the work of the employer.

Croner reinforces his theory by identifying certain developments in industry which, he argues, have led to the growth in the numbers of white collar workers. These developments, he asserts, are the four processes of industrialisation, rationalisation, commercialisation and socialisation.

1. Industrialisation creates vacancies for increased numbers of executives in technical, administrative and commercial positions in business.
2. This new executive class has been further enlarged by the rationalisation of industrial concerns and the shift in their centres of control from the factory to the office, resulting in the formation of a new executive class of worker.
3. Commercialisation, Croner claims, is the result of the growth in trade which follows increased industrialisation, and is the process of placing manufactured goods at the disposal of consumers. Commercial work lends itself less

than industrial work to rationalisation or mechanisation, and a relatively greater amount of labour is required to market the expanding volume of goods than to produce it.

4. The fourth factor, socialisation, is the development of public sector employment, as a result of the increasing influence of the State on economic activity. Examples of this are the direction of industry in relation to the demand for employment, the organisation of an extended range of government services such as social security and education.

The functional approach to occupational definition was defended by Girod⁽³³⁾ who put forward criteria based on the 'functions' and 'objects' of occupations. White collar work, claimed Girod, involves acting upon other people (the objects) whilst its function is to administer, influence and relate to aspects of human behaviour. In contrast, blue collar work is essentially concerned with inert matter, and its function is to convert this into a usable form. The basic distinction therefore, according to Girod, is that white collar workers are essentially concerned with people-orientated activities, whereas blue collar workers are involved with activities which are concerned with

the manipulation of physical objects. Girod reinforces this theory by claiming that the two occupational groups are distinguishable in terms of the nature of their working environment. Blue collar work is carried out in an environment which is 'mechanical', whilst white collar work takes place in a work environment which, according to Girod is non-mechanical or 'bourgeois'. This functional division of occupations based on a people/things distinction is also echoed by Crozier,⁽³⁴⁾ when he claims that white collar work is involved with human relationships, whilst blue collar work is more technically occasioned.

The main weakness of the functional approach is that, whilst it lends itself to broad general application in private enterprise, it cannot be seen to have validity in the field of 'Public sector' white collar employment. The notion of the delegation of the employer's responsibility in the work role performed by civil servants and local government officials is difficult to accept, since their duties were not originally carried out by the employer. It might, of course, be argued that civil servants are carrying out duties which have been delegated by the sovereign, but this is an

unrealistic viewpoint, when account is taken of the extent to which the monarchy is now separated from the administration. In the majority of civil servant occupational categories, the manual function does not exist and therefore Croner's comparison is not possible. Thus the notion of white collar workers performing the employer's tasks after the manual function has been delegated does not apply. A further criticism is suggested by Bain and Price when, in considering Croner's reasoning, they state:-

"That it rests upon somewhat questionable historical analysis".⁽³⁵⁾

Conclusions

It is still customary practice to form a distinction between the two occupational groups which, for identification purposes, are labelled 'white collar' and 'blue collar'. Numerous writers have attempted to specify a logical framework which would underpin their definitions of the two groups. Perhaps the most serious weakness of the various approaches is that they do not withstand the scrutiny of comparison with the structure of the contemporary work force, and thus they are not useful for any present day analytical purpose. The problem is further complicated by the fact that

many of the approaches merely beg the question, and focus not on the white collar/blue collar division but on other distinctions about which it is equally difficult to be precise. Yet, according to Bain and Price:-

" the notion that there is a clear distinction between white and blue collar employees, still persists in the popular consciousness". (36)

This chapter has examined some of the sources of this consciousness, and has identified some of the unique characteristics of white collar work and some of the symbols by which it may be associated. They fail however to provide a logical and consistent theoretical framework which has validity throughout the occupational spectrum. These characteristics can be regarded as manifestations of a more basic feature, i.e. work associated with information. It is the reliance on, and the communication of information which has marked the increasing employment of white collar workers. The 'brain work' label was formed because the nature of the work is the manipulating of information rather than the handling of objects. The functional distinction emerged as a result of the need for the employer to delegate the functions of information collection, storage and distribution. Employees who carried out this work tended to have need of a separate working environment

from those who worked on material objects. Further, the work can be described as 'people orientated', since the collection and exchange of information is an activity which is conducive to the establishing and furthering of personal relationships. Similarly, because working with information required literacy and numeracy, it was at one time more likely that such employees would be drawn from a higher social class.

To interpret concepts of white and blue collar as symbols of significance in worker behaviour patterns may be unsound. A division as coarse as this is akin to dividing society into males and females, and assuming that they will invariably reflect differences in attitude and behaviour. Frequently they do so for specific analytical purposes, but in other instances the divisions have no such value. Nevertheless, there are many reasons for being interested in the source of the division of occupations in this way. The role of white collar workers in the production of goods, and their influence on economic, political and social institutions is a matter of continuing scrutiny. Their ideology has some significance for the future pattern of industrial relations and the growth of the Trade Union movement. Their increasing proportions within the work force means that their importance to economic performance is now considerable,

with the result that, in studies of productivity, their contribution can no longer be ignored. In a discussion on white collar worker productivity, Hamilton⁽³⁷⁾ wrote:-

"..... the public is now assailed by more irrelevant facts, half facts and non-facts on this issue than on any issue in public affairs".

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CHAPTER FOUR

INTERPRETATIONS OF PRODUCTIVITY

Introduction

This chapter examines in general the meaning of the term productivity and illustrates how differing interpretations of the concept have developed. Concepts which are developed to explain complex organisational phenomena still have relevance in the context of smaller units of activity. The difficulty with some of the more popular approaches to productivity studies is that they cannot be fully implemented when applied to the functions which offices undertake. They are rarely taken further than the stage of being made logically acceptable by application to carefully chosen examples, which tend to deal only with special situations.

In analysing some of the definitions and interpretations of productivity, it is proposed to concentrate on those aspects that might make a contribution to furthering an understanding of the meaning of the term as applied to offices. Thus the chapter begins by considering some alternative definitions of the concept, before reviewing three differing interpretations, in order to illustrate the range of criteria which have emerged from the various disciplines. The schools of thought have been selected

as a basis from which to discuss the application of traditional productivity criteria to the office. Examination will highlight the theoretical and empirical problems likely to be encountered, since office productivity requires an approach of a more diversified nature.

Definitions of Productivity

In general terms, productivity is a measure of the efficiency with which physical inputs - land, labour and/or capital - are converted into physical outputs - goods and services. It is a comparison, usually expressed as a simple ratio between output and input, which ideally specifies no individual manner of input or output. According to J. E. Faraday,

"..... any industrial process, indeed most human activities, can be reduced to the simple formula that a prescribed output is created by the input of only three things - manpower, materials and capital equipment and that for any selected time interval these four things can be quantified".⁽¹⁾

At its most fundamental, productivity denotes the productive power of land, labour and capital in the creation of wealth. It is more common, however, to define productivity as a measure, a ratio or a rate of return. Thus Whitmore defines the concept as follows:-

"Productivity may be described as an instance of efficiency and defined as,
output obtained from an undertaking
amount of resources used to produce this output"⁽²⁾

Further definitions of productivity give support to the ratio concept and draw attention to the problems of measurement. Easterfield defines productivity as,

".... the ratio of a measure of output (of industry, plant machine etc.) to a measure of one or more of the inputs (labour, raw materials, machine time etc.) used to produce the output. Even if the input or the output has to be measured in some sort of artificial unit, it is conceptually possible to compare the productivity so defined from time to time or from place to place".⁽³⁾

Productivity may, in general, be interpreted as a measure of the relationship between inputs and outputs, assessing the performance of production. It is, therefore, a measure of the efficiency with which physical inputs - land, labour and capital are converted into physical outputs - goods and services. Most physical outputs are not homogeneous and therefore must be converted into homogeneous units before they can be aggregated. To overcome this problem, units of output are normally multiplied by their real price per unit and expressed in value terms. Thus, by a process of weighting, heterogeneous units can be converted into homogeneous units, and subsequently expressed according to their relative importance, by measuring them against a standardised unit of output.

Productivity Measurement

The main focus of this study is not on industrial

productivity as a whole, but on the problem of developing appropriate measures for the performance of service organisations or service activities within manufacturing concerns. Such measures would be of particular value to organisations which are either decentralised geographically, or have autonomous cost or profit centres, whose performances need to be evaluated, in order to facilitate the control of operations, or to motivate certain groups of managers. Analysis of the basic requirement in such instances shows that the validity of any one measure for a given activity is dependent on the specific purpose of the activity, on the nature of the product or service and the constraints under which the activity is carried out.

Gold⁽⁴⁾ observes that many of the widely used concepts of productivity have shortcomings. These are summarised as follows:-

1. Output per man hour is not a measure of productive efficiency as a whole, since labour is only one component of the production process.
2. Increases in output per man hour may not be in every case desirable. This is particularly true in the case of office work since more information does not necessarily aid communication.

3. In capital-intensive industries, even if increases in output per man hour are accompanied by only proportional increases in hourly wage rates, costs of production will vary so little that productivity will be largely unchanged.

An alternative approach to the conventional cost and productivity concept would be one which reflected the objectives and managerial goals of the unit concerned. This view is reinforced by Eilon and Soesan,⁽⁵⁾ when they emphasise that a more fruitful approach to productivity measurement is to analyse the reasons for measurement. The reasons they give are fourfold:-

1. For strategic purposes - for the purposes of comparing the organisation with that of competitors or related organisations.
2. For tactical purposes - to control the performance by comparing similar work units or activities within organisations.
3. For planning purposes - to compare the ways in which various inputs or combinations of input are beneficial over periods of time.

4. For other managerial purposes e.g. collective bargaining, assessing the performance of individual departments or branch activities.

The fact that productivity measures can be used to fulfil so many functions suggests that different measurement techniques might be appropriate, depending on the particular activity being analysed. Thus when Easterfield defines productivity as,

"A measure of output (of industry, plant, machine etc.) to a measure of one or more of the inputs (labour, raw materials, machine time etc.,) used to produce the output"

an expansion of such a definition is required. Inputs are not limited to 'labour, raw materials or machine time' and in many organisations, particularly in service activities, the input elements of specialised knowledge, or the relationships between individuals or groups introduces aspects which are difficult to measure. Any appraisal of service productivity should recognise that service activities have a qualitative aspect, which is difficult to include in a productivity calculus.

An example of such a problem is evidenced by research into the economics of higher education, which examines various approaches to the measurement of the output of a university.⁽⁶⁾ First attempts at defining university output would specify

that it consisted of numerous and diverse components, which would include the following broad categories:-

- (a) Educational output - increases in students' knowledge and skills, both cognitive and social, which increase their productivity and consequently their ability to earn their income.
- (b) Informational output - The dissemination of information to students and to the community as a whole through the university's teaching programme. Additional informational output would be the reporting of students' attributes and educational attainments to students themselves and to prospective employers, which may facilitate more rational career choices and recruitment policies.
- (c) Research output - increases in empirical knowledge, development of new logical concepts, new products and new procedures, and creation of new works of art, which may directly or indirectly increase the economy's productive capacity.

Outputs such as these raise the possibility of regarding

a university as a multi-product service organisation, which produces 'public goods' and, seen in these terms, it is valuable for society to know how well it produces the things it claims to produce. The application of a productivity perspective to an educational institution may be regarded by academics as irritating, or even offensive. University teachers, like other professionals, pride themselves on a dedication to the substance of their profession, and therefore deem their professional activities to be impervious to economic strictures. Nevertheless, a productivity assessment of a university should remind academics of the cost of apparently innocuous practices, costs which are frequently insidious and hence are conveniently ignored.

In view of the significance of the issues raised by attempting to apply productivity criteria to different types of organisation, it is understandable that a considerable body of literature has developed, reflecting the various approaches which attempt to deal with the different aspects of this complex field. A review of some of these may provide some insight into the diverse nature of the issues which arise, when attempting to overcome the many difficulties which emerge.

Accountants' Measure of Productivity

Accountants tend to view productivity in terms of finance, particularly in relation to budgetary control and costing systems. In order to evaluate the performance of various product lines in a firm, or to compare the overall performance of the business with that of other firms in the same industry, they use various ratios such as return on capital employed, or return on sales figures. These ratios are also used by accountants as indicators of productivity. Many of the productivity measures in use today are those developed by accountants and are financially orientated. Some organisations make an evaluation of performance by adopting 'financial ratio analysis' - ratios that provide management with indicators of productivity and liquidity. In theory, there are no limits to the number of ratios that can be derived. Foulke⁽⁷⁾ suggests that it is possible to draw up more than five hundred such measures, which are broadly referred to as a measure of business efficiency and, by some managers, as a measure of productivity.

As was suggested earlier in this chapter, the objective of most financial measures is to provide management with a series of guidelines. Such measures are regarded

as useful, as a means of overcoming the problems of the heterogeneity of inputs and outputs. Thus, by combining the various inputs into an aggregate of associated outlays or investments, and by combining the outputs of different products into an aggregate of associated revenues, ratios are devised to reflect the financial aspects of productivity relationships. As part of his plans to improve the productivity of G.E.C. in 1968, Arnold Weinstock⁽⁸⁾ established seven critical ratios to control the workings of a decentralised unit. These were:-

1. Profit/Capital
2. Profit/Sales
3. Sales/Capital
4. Sales/Fixed assets
5. Sales/Stocks
6. Sales/Employee
7. Profits/Employee

A different approach is adopted by Risk⁽⁹⁾ who advocates the return on investment as a starting point, and suggests that, by dividing assets between departments, it is possible to distinguish between productive and non-productive assets. This 'capital productivity ratio', when applied in a variety of circumstances, makes it possible to

calculate a productivity ratio for separate activities or functions e.g. administration, production, transport.

Closer examination of the ratios used by accountants shows that they are invariably sales or profit orientated, and yet the sales volume or profit may have nothing to do with the efficiency of production, but may be strongly influenced by supply and demand or by the particular circumstances under which a firm is trading e.g. monopoly conditions. Nonetheless, these financial ratios, although not individually definitive indices of productivity, can be regarded collectively as a series of pointers which, if they concur, can be interpreted as reasonable guides to productivity. According to Witschey, (10)

"Accounting neither strives for nor attains absolute truth. Although it is characterised by a rather elaborate theoretical framework its results are usually dependent upon judgement. While there are limited objectives in accounting perhaps its principal purpose is to describe change. Thus in the case of a business entity the central goal of accounting is the determination of income (or expenditure) i.e. changes resulting from the efficiency of operations".

Economists' Measure of Productivity

(a) Manpower Equivalents

Economists generally favour comparisons of productivity that are macro in nature, and in order

to achieve these, the principle of converting all input factors to their equivalent in manpower terms is adopted. Based on concepts dating from Adam Smith, it can be argued that labour is the only source of value, and it alone can convert raw materials into finished goods. Thus, as Norman and Bahiri⁽¹¹⁾ comment:-

"All materials, depreciation, services and final products consisting of materialised labour can be converted into manpower equivalents by dividing the output or input in financial terms by the current average annual wage".

Approaches based on the reduction of all inputs to their labour content were suggested by Smith and Beeching⁽¹²⁾. They proposed that the manpower equivalents of raw materials and services purchased, and capital used, should be added to the labour which was used in a manufacturing organisation. These totals were to be calculated by taking the values of the raw materials and services, and dividing them by the average national wage per employee per annum, and by dividing the value of the existing plant by the same average wage. In this way, it is possible to produce a total number of 'man years' that can be divided into the output per year, to obtain a figure of output per man year. The main indices

which Smith and Beeching were attempting to elicit were as follows:-

- (1) Man-years of Manpower. This is the average number of employees engaged in the year. For greater precision, this could be divided by 12 or 52 to give the relevant figure of man-months or man-weeks.
- (2) Man-years of Materials. This is deduced by dividing the actual sum of money spent on materials in the year by the average national wage at that time. It can be regarded as the value which a nation puts at that time on an average man-year of work. It follows, therefore, that a figure representing the equivalent man-years for material usage can be obtained by dividing the price by the man-years.
- (3) Man-years of capital equipment. In a similar way, this could be calculated by dividing the capital cost by the average national industrial wage and then dividing again by the years of life expectancy.

Thus there results a total number of man-years, that can be divided into the output per year, to calculate a

figure of "output per man year" or

$$\text{Productivity} = \frac{\text{Revenue}}{\text{No. of Employees}}$$

or as expressed by Norman and Bahiri⁽¹³⁾

$$\frac{\text{Sales Output}}{\text{Labour (live) + Labour (materialised)}}$$

Measures such as these are relatively simple to calculate, and are of some value when comparing the productivity of manufacturing concerns. The use of man-year equivalents takes account of inflation and the possibility of wage rates variations in different industries, or in different overseas countries, from which capital or material goods might be imported. A greater degree of accuracy would be achieved, by separately reducing each item of material, capital or service to a man-years equivalent, according to its cost and the average income per person employed in the industry that produced it at a particular time. This would be a laborious exercise and, although the measure would come close to a ratio of sale price to costs, its value might be assessed in Easterfield's terms:-

"..... a useful management ratio but hardly a productivity index".⁽¹⁴⁾

Economists' Measure of Productivity

(b) Added Value

The concept of 'added value' can be used to overcome some of the deficiencies of having to rely on rates of output to input expressed in manpower terms.

The use of added value is also beneficial, in reducing the misleading effect of regarding output in terms of sales revenue. Much of the value of the sales revenue of a manufacturing concern includes 'bought-out' materials and supplies, the price of which includes the profits of suppliers. Productivity measures which are based on values added by suppliers would therefore be inaccurate. 'Added value' may be referred to as net output, which is defined as:-

"The value added to the materials by the process of production (including) the gross margin on any merchanted or factored goods sold, it constitutes the fund from which wages, salaries, rent, rates and taxes, advertising and other selling expenses, and all other similar charges, have to be met as well as depreciation and profits.⁽¹⁵⁾ There is no appreciable duplication in net output".

Added value is therefore the total sales proceeds less the cost of materials in manufacturing industry, and in the distributive and service industries, it

is the total sales proceeds less the cost of purchases.

In the U.K. Census of Production, labour productivity is expressed in terms of net output per head. This net output figure is obtained by first adjusting the sales turnover for any changes in levels of finished stock between the start and end of the year, giving a 'gross output' figure. From this gross output is deducted the cost of all raw materials and other purchases, giving a net output figure. Thus the Census 'net output' represents the value added to materials by the processes of production. Although some writers express productivity in terms of sales per employee, the advantage of using added value per employee is that it discounts the effects of differences in material content between firms and industries. Thus, using added value as a measure of productivity, it can be seen that:-

$$\text{Productivity} = \frac{\text{Added Value per annum}}{\text{Total No. of Employees}}$$

$$\text{or } \frac{AV}{E}$$

where AV represents the value added to materials by the process of production, and constitutes the financial resources out of which wages, salaries and other indirect costs have to be met. Thus added value is obtained by subtracting the value of the goods and services purchased from other firms from the value of the goods produced. Or, $AV = S - X$ where S represents the total value of sales and work carried out, and X is the total sum of expenses incurred in the process of production.

In attempting to refine the added value measure, Norman and Bahiri⁽¹⁶⁾ distinguish between "productive" and "non-productive" employees. They categorise productive employees as:-

"those employed controlling machines and processes in power houses, transport and stores warehouses, canteens inspection maintenance and cleaning, and all manual wage earners".

and they define non-productive employees as:-

"the administrative, technical and clerical employees, including managers, superintendants, foremen, researchers, experimentalists, development engineers, design people, computer personnel, draughtsmen, tracers, representatives, salesmen and all other office staff, including executives and directors".

Hence they subdivide the total number of employees E into E_o (productive), and E_a (non-productive), and express both in units of man-years. As a result,

they derive the expression

$$\frac{AV}{E} = \frac{S - X}{E_o + E_a}$$

in order to ensure a slightly more consistent measure of productivity, by separating the number of employees who are directly related to the production process from those who are 'indirect'.

Added value can be seen to have a fundamental advantage over financially based "gross output" indicators of productivity, since it permits more effective comparisons to be made where the proportional cost of bought-in goods and services can vary considerably. This can be of some significance in industries which are structured on the basis of several inter-dependent units or firms supplying components for subsequent assembly. It is regrettable that there are no national figures which compare added value by industry or firm, but some companies have accepted the recommendations of the Accounting Standards Committee⁽¹⁷⁾ by publishing certain figures. The U.K. Census of Production lists a net output figure

for each of 150 industries and, subject to some qualification, this can be interpreted as added value. One of the most important uses of the concept of added value is in indicators of national productivity, more commonly known as Gross Domestic Product (G.D.P.), and G.D.P. per head of working population.

Engineers' Measure of Productivity

The engineer's emphasis on productivity measurement tends to focus on quantitative measures of production times, labour and material requirements, waste levels and machine utilisation. These measures will frequently be sought at the expense of motivational factors and financial aspects. The conventional engineering expression for the efficiency of a machine relates productivity to the efficiency of the producing activity, and therefore implies an input/output relationship. Since the input is converted to the output, it may be said to generate the output, and thus cannot exceed unity in the physical sense, although it may do so in financial values. Norman and Bahiri develop this view further by contending that:-

"..... since the potential output is equal to the input, the degree of achievement of this conversion (useful/potential) is another measure of efficiency that cannot exceed unity". (18)

In the search for precision to which the engineer aspires, the approach to productivity focuses on the development of a productivity index, which will encompass the three factors of labour productivity (output per man-hour), material productivity (output per unit of material) and machine productivity (output per machine per hour). Increases in labour productivity are sought by the establishment of methods and procedures to make the most efficient use of technical developments. Improvements in material productivity are achieved as the result of scientific research, which results in new knowledge of materials' processes and physical laws. Machine productivity is increased by the development of technology, which leads to the invention of, and increased use of newer machinery.

Faraday has developed an index of productivity called a Total Productivity Measure (T.P.M.), which includes an evaluation of all the inputs and outputs and which he claims is

"the most fundamental productivity measure".⁽¹⁹⁾

This measure relies on a statement of outputs in physical units, in order to eliminate the problem of financial expressions which become distorted over time by inflation and price changes. In addition, the main practical objection to the use of sales revenue, whether adjusted for price change or not, is that changes in firms' policies in respect of bought out parts and components destroy the comparability of the index. A T.P.M. similar to Faraday's could be constructed by taking the base year's output of each item in man-hours, and dividing the sum of these figures into the sum of a given year's outputs, at the base year's labour per unit. The resulting index is a unit index, and it is multiplied by 100 to give the percentage index. The production index thus calculated is then divided by the manufacturing manpower in the relevant year, and multiplied by that in the base year, to give the productivity index. The use of Laspeyre's formula⁽²⁰⁾ is widely made in this context for the calculation of the production index.

One problem which cannot be overcome by the use of the production indices is that arising from changes in the scope of a plant's operation, involving changes in the make or buy policy. Any policy changes which resulted

in decisions to make certain components instead of buying them would increase intra-plant productive contributions per unit of finished product; yet use of the unchanged finished products as output weightings would ignore this change. Gold⁽²¹⁾ claims that this shortcoming may be minimised by:-

"..... multiplying the quantity of the product after the changed make or buy decision by the ratio of the new value added per unit of output (price minus unit material cost) to the original value added per unit".

Other General Approaches

(a) Productivity Costing

This concept emphasises the extent to which particular products contribute to a firm's productivity, rather than the contributions of particular functions or operational units. From this standpoint, the productivity of a product is measured by its value as a profit earner. Martin⁽²²⁾ advocates measuring only work which is directly related to the objectives of the organisation. On the assumption that a firm's costs do not vary significantly over the normal range of output levels, once the productive units have been identified, productivity can be measured by the rate at which each product generates profit. Although various

productivity indices can be constructed, the key index is the Product Productivity Index, which is calculated by dividing the total profitability of a product by the cost of producing the product. This index, given as Td/Cd , can be used to specify cost parameters in manufacturing industry, the effect of underutilisation of capacity and the influence of idle time on production costs. Criticising productivity costing approaches, Eilon and Soesan⁽²³⁾ comment that they reflect:-

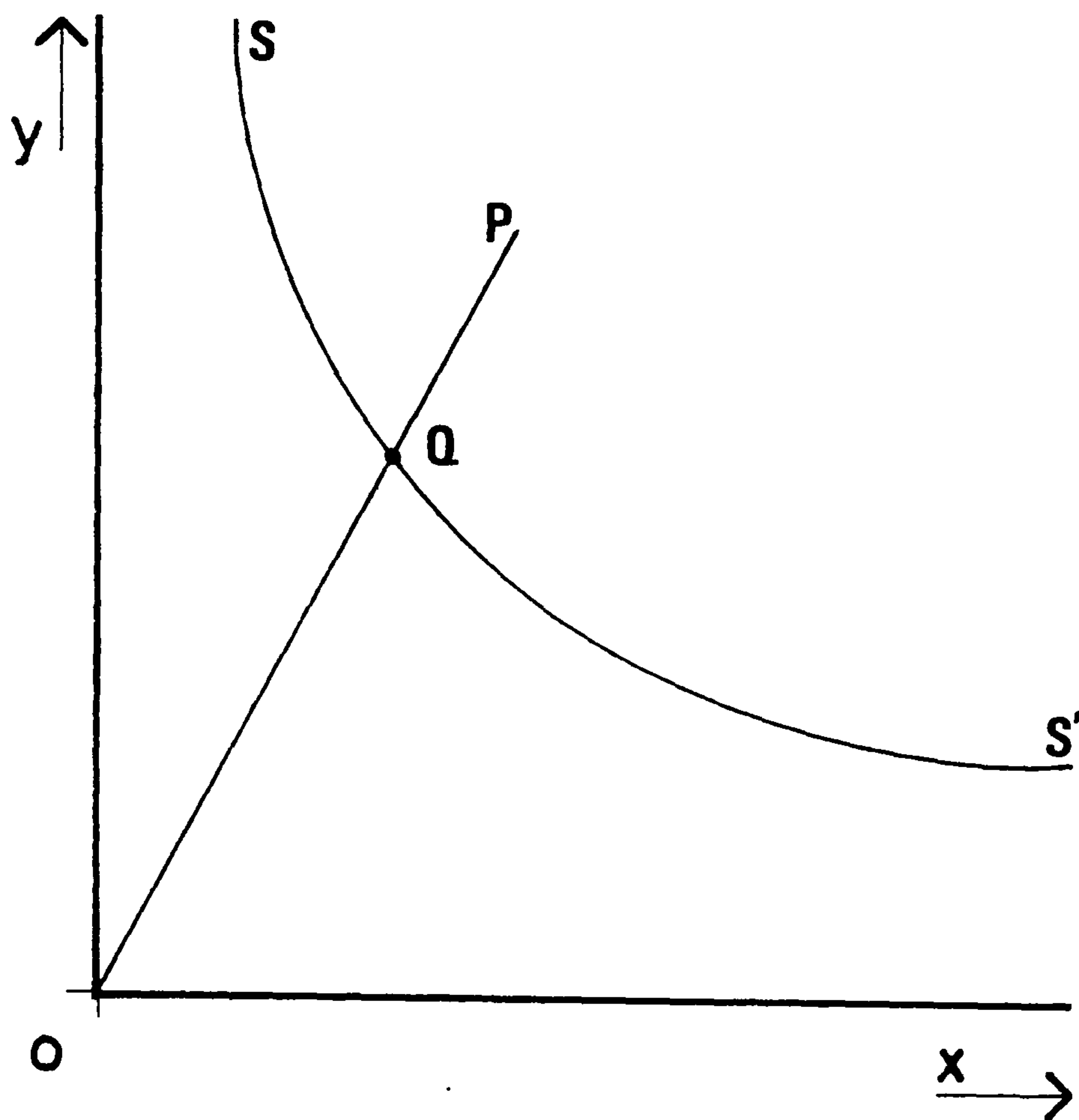
"..... a conception less closely associated with the common connotation of productivity than with the prevailing business concepts of profit margins and of allocations to specified cost categories".

(b) The Efficient Production Function

Farrell⁽²⁴⁾ has attempted to develop a satisfactory measure of production efficiency - one which takes account of all inputs and yet avoids index number problems. His approach is based on measuring the 'technical efficiency' of a productive unit, through the concept of the 'efficient production function'. This, in the case of a firm employing two factors of production (inputs) to produce a single product (output), is the locus of all points of the most efficient way of producing a given output from combinations of two inputs.

Fig. 4.1.

Farrell's Technical Efficiency of the Firm.



In Fig. 4.1, the point P represents the inputs of the two factors, per unit of output, that the firm is observed to use. The line SS' represents the various combinations of the two factors that a perfectly efficient firm might use. The point Q represents an efficient firm using the two factors in the same ratio as P, using only a fraction OQ/OP as much of each factor. It could be described also as producing OP/OQ times as much output from the same inputs. Thus the ratio OQ/OP is defined as the 'technical efficiency' of the firm.

The concept of 'technical efficiency' is based on the proviso that all inputs and outputs are accurately measured - a provision with which it is extremely difficult to comply, given the ambiguities which can arise in the measurement of inputs and outputs, particularly in service activities.

Conventional Productivity Concepts - Limitations in Offices

Although the foregoing analysis has not covered all aspects of the problem of the definition and interpretation of productivity, it has permitted a discussion on the range of approaches about which, as yet, there is little consensus of opinion. A common theme in much of the research into productivity analysis and measurement is that of attempting to define productivity in terms of a simple casual relationship, generally expressed as a ratio between output and input. The increasing inability of these attempts to yield results in terms of acceptability and validity in service units can be found in a comparison between the nature of production and service activities.

The financial ratios generated by accountants, although providing guidelines which are easily derived, do not embrace the service oriented features of an activity

such as an office. Although there is evidence that financial ratios are related to productivity, there does not seem to be a clear association between these ratios and productivity. Perhaps the most inadequate aspect of the financial ratio approach, when it is applied to office work, is that it fails to take account of the various inter-relationships between the independent variables, which influence their collective relationship to productivity.

Some of the measures used by economists can be regarded as valuable indicators of organisational performance, but the question then arises as to what extent these are measures of productivity. The conversion of units of output into a labour utilisation equivalent, whilst providing a useful measure of performance over time, does not provide a pointer to the utility function of a service. Similarly, the use of 'added value', although a popular source of aggregate productivity data, does not isolate individual units or functions. Perhaps the most significant contribution of the added value productivity measure is that it has permitted a measure of progress to be made in incorporating the work of white collar employees in overall productivity measures.

The traditional thinking on productivity implicit in the theories of engineers, is the assumption that any unit of activity can be seen as a 'deterministic' or 'mechanical' process, in which the variables are amenable to precise definition, because they are determined automatically in precise mathematical terms. The inadequacy and irrelevance of such an approach is evidenced when it is applied to a service unit. As observed by Bell:-(25)

"Productivity in services, because it is a relation between persons rather than between man and machine, will inevitably be lower than it is in industry".

Whilst many inputs of services can be quantified in numerical terms, the difficulty becomes apparent when attempts are made to measure outputs in this way. The productivity of a violinist is not improved by increasing his bow movements per minute.

Accountants will argue that the way to increase productivity is to reduce labour costs; economists will put forward a case for the substitution of labour by machinery; and engineers will state that the answer to declining productivity lies in a more comprehensive measurement programme. This study will propose that there is a different element to be recognised in improving the productivity of services - that is a change in the ways in which the service producers interact with the users. Much of the service provided by an office

includes relating to the users of the service, and for this reason a study of office productivity must include an aspect of a 'consequences' function - the general relationship between consequences and outputs. Any theory of productivity which claims to embrace clerical productivity must include an evaluation of the consequences of the service.

Conclusions

Despite the increased attention being paid to productivity in recent years, there still are several misunderstandings concerning the nature and meaning of productivity concepts and measures. This chapter has summarised different approaches to the definition of productivity, and the interpretations which various disciplines have adopted in forming useable indicators. The theme of the analysis had two objectives: firstly, to highlight the need for the development of new theory in explaining productivity in service activities; and secondly to consider the particular problem of productivity as an example of the inappropriateness of existing schools of thought when applied to the productivity of offices.

The chapter began by comparing alternative definitions

of the concept of productivity in order to illustrate the range of meanings which have been applied to the concept. Thereafter, three main approaches to productivity were identified and their theoretical and practical implications were examined. Finally, the chapter considered the extent to which the productivity approaches discussed were relevant to the theme of this study - the productivity of the office service in organisations. The special nature of office productivity and some of the studies which have been undertaken on the nature and causes of administrative overheads will be examined in the following chapter.

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CHAPTER FIVE

ADMINISTRATIVE PRODUCTIVITY

Introduction

The previous chapter considered the meaning of productivity, and compared some of the ways in which the concept is applied to the organisation as a whole. This chapter explores some of the ways in which productivity can be related to the particular organisational function on which this study is based i.e. the administrative or office function. The process of developing productivity criteria for parts of an organisation or for occupational groups is now well established, and many hitherto 'immune' groups such as physicians,⁽¹⁾ and local government units⁽²⁾ are now the subject of productivity studies. In many cases, particularly in public sector organisations, productivity investigations yield more valuable results when applied to units or sections of activity e.g. fire service, housing service.

This chapter begins by highlighting the significance of administrative overheads i.e. the cost of office services, and reviews some of the literature pertinent to this phenomenon. Thereafter, the question of administrative productivity is discussed, together with a consideration

of some of the methodological issues which have been adopted in other similar studies. Finally, the chapter develops a tentative format of the model which forms the framework of this study, and outlines the major variables which are to be used as the basis of the measurement scheme.

The Significance of Administrative Overheads

The disproportionate growth of the number of white collar workers raises issues (see Chapter 2) which have significant implications for the economic performance of industrial and commercial concerns. These issues have attracted considerable attention, and have given rise to numerous speculations both as to cause and as to the consequences of this growth for industrial productivity. Two factors are however focusing greater attention on aspects of white collar worker numerical growth. Firstly, the Government's recent policy of linking pay rises to greater productivity is encouraging the white collar unions, in the interests of their members, to examine the feasibility of establishing productivity criteria for indirect workers⁽³⁾. Secondly, in many industries indirect labour costs are now higher than direct, and it is in the white collar area that the greatest opportunities lie for increased productivity. Referring to the need to increase productivity in the

field of white collar work, Evans and Hague⁽⁴⁾

observe:-

"For it is the fields of labour involved in engineering a product, ordering materials, preparing detailed manufacturing instructions, scheduling manpower and machines, selling and distributing a product, and similar operations which are dominated by one recurring characteristic; the need for rapid and accurate processing of information".

The importance of this problem is reinforced by Drucker⁽⁵⁾

when he states:-

" from now on our increases in productivity in this country will depend above all on our ability to increase the productivity of the non-manual worker".

The impact of increasing proportions of clerical workers on the productivity of the labour force as a whole has for several years been an issue of importance to various researchers. Early work on this problem was carried out by Melman,⁽⁶⁾ who paid particular attention to the growing numbers of administrative workers in manufacturing industry in the United States. After an analysis of the occupational structure of several manufacturing industries, Melman identified the rise of the 'administrative overhead', which was the ratio of administrative employees to production employees, and his study continued with efforts to discover the effect of this on the output of the labour force as a whole. Commencing with a study of the growth in the numbers

of administrative employees in manufacturing industry, both in absolute and in relative terms, Melman went on to show that increases in the ratio of administrative to production employees paralleled increases in productivity, in both the United Kingdom and the United States over the period 1900 to 1950. Notwithstanding this association, Melman argued that increases in numbers and proportions of administrative employees did not make a positive contribution to productivity, but that the reverse was the case. In support of his thesis he cited two main points. Firstly, since the two trends were only loosely related, Melman argued that the increases in productivity which are calculated in his sample of twenty one manufacturing industries are not directly related to the percentage of administrative employees, but to various 'other factors', of which mechanisation is the most significant. Secondly, Melman concluded that in the industries he studied, output per productive worker increased more rapidly in the period under review than output per employee (production and administrative workers). This latter conclusion ignores the contribution which white collar workers make to productivity increases.

In a criticism of the work of Melman, Blau and Scott⁽⁷⁾ observe:-

'Differences in type of organisation between industries are just as likely to be responsible for the absence of a correlation between administrative expansion and increased productivity as for the absence of a correlation between mechanisation and productivity'.

There is a certain inconsistency in Melman's logic, when he argues that whilst 'other factors' negate the administrative growth/productivity relationship, they are not given consideration in his findings on the productivity/mechanisation relationship. It is moreover unfortunate, that Melman makes no attempt to evaluate the potential contribution of administrative workers to overall productivity, and in so doing deal with the question of the varying conditions under which a particular size or type of administrative apparatus would make a contribution to productive efficiency.

In a paper which included some observations on the work of Melman, Holland⁽⁸⁾ contended that satisfactory productivity increases will involve, and be dependent to a great extent on, an increasing proportion of white collar workers, but:-

"..... there should be a shift in the balance of activities, in favour of those primarily orientated towards exploiting opportunities for lower costs and higher productivity, and away from those primarily orientated towards creating greater opportunities".

Emphasising that administrative overheads and labour productivity had increased in most industries since the beginning of the twentieth century, Holland claimed that the increase in the proportion of white collar workers in industry may be considered as one of the main factors which had influenced the increase in industrial productivity.

Further work on the proportions of white collar workers in industry was carried out by Galambos⁽⁹⁾ who showed that the greatest productivity increases occurred in the chemical, engineering and electrical industries, all of which employed the largest proportion of white collar workers. Galambos went on to show that the size of the administrative overhead was influenced by factors which were related to the structure of the particular industry. Commencing by showing that the proportions of white collar workers were consistently larger in the newer expanding industries (chemical, aircraft, light engineering), and relatively small in the older traditional industries (textiles, clothing, footwear), he went on to show that a relatively small proportion of white collar workers was associated with the concentration of the total labour force of an industry into a small number of enterprises. His study analysed the percentage of white collar workers in

relation to certain other 'economic factors'

- (a) employment concentration
- (b) capital expenditure
- (c) net output (value added) and
- (d) size of firm.

(a) Taking employment concentration as "the number of employees in three or more largest enterprises, expressed as a percentage of total employment of an industry", Galambos illustrated from a series of tables that the proportion of white collar workers is smaller in industries with high employment concentration and relatively large in industries where employment concentration is low. He concluded that, in the economy as a whole, the proportion of white collar workers tends to be smaller in industries where a large percentage of the labour force is concentrated in a few enterprises.

(b) Capital Expenditure - Galambos reasoned that the increasing use of modern capital equipment would be likely to result in the employment of more white collar workers. His tables illustrated an inter-industry comparison between the proportion of white collar workers (P), and capital expenditure per operative (C). Analysis of the data showed a rank

correlation coefficient between P and C for the years of his study to be 0.53 and 0.56 respectively, giving Galambos grounds for concluding that:-

"..... capital expenditure per operative and proportion of non-operatives are positively associated".⁽¹⁰⁾

- (c) Net Output - Hypothesising that there would be a positive relationship between net output and employment of white collar workers, Galambos compared proportions of white collar workers to net output on an inter-industry basis over a ten year period. His observations showed that there was a positive association, and that the correlation increased over time, reflecting the increasing proportions of white collar workers.
- (d) Size of Firm - Galambos went on to compare proportions of white collar workers to size of firm, and although he found no significant relationship between firm size and proportion of white collar workers, he regards this as being due to the unsatisfactory nature of the data available to him. It is of interest to note that Melman⁽¹¹⁾ in a separate study to the one mentioned earlier in this chapter, compared proportions of white collar workers (administrative overheads) with size of firm (asset size). Melman concluded that administrative

expense was lower per dollar of sales for the larger asset size firms and that, since he also found that the largest firms were the most profitable, this lower level of administrative overheads was a significant feature in contributing to higher profitability. Melman explained this by suggesting that it is the larger firms that make use of advanced management methods and staff specialists, thereby giving them certain economies in the use of administrative personnel.

The topic examined by Melman and Galambos was also studied by Fleming,⁽¹²⁾ who demonstrated that differences in productivity levels were directly related to size of firm, and that variations in administrative overheads were associated with firm size. Fleming's findings supported the conclusions of Melman, in that he observed the tendency for firms with higher levels of productivity also to have relatively higher proportions of white collar workers. This relationship was found by Fleming to be consistent over all industry groups, and whilst he did not contend that the two factors were causally related, their association was found to be statistically significant in two-thirds of the cases, leaving Fleming to conclude:-

"..... the ratio of operatives to other employees seems to provide an index within, generally, a reasonable margin of error, to the level of productivity".⁽¹³⁾

The work of Bonner⁽¹⁴⁾ is also of interest here, in that he measured the significance of increasing overheads by means of a series of occupation/industry matrices. After tracing the evolutionary rise of the proportion of white collar workers in industry, Bonner noted that one of the most remarkable features was their uneven distribution between industries. He found that this feature was independent of other factors, and was as marked in expanding industries as it was in declining industries. After making a comparison of the proportions of white collar workers in various industry groups, Bonner found that the evidence did not support the hypothesis that administrative overheads were a limitation on productivity increases. The absence of this relationship led him to conclude that:-

"The dominance of office work in all its forms, in terms of numbers at least, does suggest that there is some justification for describing the process as a switch of man-hours to administration, although not necessarily from production".⁽¹⁵⁾

Administrative Productivity

The evidence suggested by the research in the field of administrative overheads does not, in general, support the theory that growth of the administrative overhead

is a limitation on improvements in productivity. Some of the findings indicate that the trend of increasing proportions of white collar workers is not related to most of the influences which affect productivity, because it is as evident in declining industries as it is in the newer expanding industries. Notwithstanding the inconclusiveness of the results, there is adequate agreement on one of the conclusions formed by Melman:-

"We are thus led to the inference that the increase in administration personnel, and the failure of their number to decrease as a result of mechanisation is connected with the addition of new functions carried out by the administration personnel".(16)

Taking Melman's conclusion one step further could mean that a stage could be reached at which, if present occupational trends continue, the growth of administrative overheads would increase at a rate greater than the rate of increase in output per 'productive' worker, to the extent that there would be no gain in output per employee. For instance, in a comparison of two industries with identical total labour forces and net outputs, the industry with the highest percentage of white collar workers must have the higher level of output per 'productive operative'.

Interpretation of the results of the various researchers

is made difficult by the fact that information about the extent of mechanisation is not available. Apart from Melman, who considered "average horse power per wage earner", there is little consideration given to the technological variations in differing production systems. Comparisons of productivity levels which exclude mechanisation variables are ignoring a factor which might be an explanation of variations in proportions of administrative overheads. In other words, it might be that firms which are highly mechanised have the lowest proportion of operatives, and that the high investment policy of such firms explains the pattern of the staff ratio. It is to be expected that certain levels of mechanisation are more appropriate to certain sizes of industries, and to the extent that this is so, it must be a factor of some significance in determining the differences in productivity.

It might further be hypothesised that the level of mechanisation would be influenced by the type of production process utilised by a firm e.g. small batch, flow lines, or mass production. Woodward⁽¹⁷⁾ showed that the proportion of white collar workers increases as the production process moves from batch to mass

production and to process production. Woodward also found that certain factors which would be expected to account for differences in levels of administrative overheads on an inter-firm basis were not significantly related. For instance, she found that no significant relationship existed between firm size and type of production system, and that firms in the same industry had little in organisational structure which was similar. Woodward's studies did not include any information on productivity and its relationship to type of production process. Although it might be expected that the relationship would be positive, there are grounds for believing that a production process/productivity calculus would embrace all aspects since, as Fleming⁽¹⁸⁾ observed in a later study:-

".....for while it has been found to be characteristic of certain firms to use management techniques such as method study, work measurement, production planning and control, standard costing and budgetary control, it has not been found that such firms necessarily correspond with those operating the technically advanced production systems".

Studies of the relationship between productivity and the occupational structure of the labour force are made more meaningful, if the measure of labour productivity used is 'output per employee' and not, (as is the case in many studies) 'output per productive operative'.

Much of the discussion on administrative overheads is clouded by the artificial distinction between 'productive' and 'unproductive' labour. Chapter three of this study has given consideration to some of the theories of occupational definition which underpin this distinction. These theories can explain the traditional distinctions between occupational categories, and thereby permit an understanding of some of the earlier approaches. Any advance into the cause and effect relationship between administrative overhead and productivity must, because of the complexity of modern technology, be based on the assumption that all occupational groups in industry contribute to the productivity of the organisation.

Some Methodological Considerations

Amongst the more recent literature on administrative overheads, one of the most commonly quoted is the work of Pondy.⁽¹⁹⁾ His original paper has twice been re-published in texts on organisations and his study is based on the Cobb-Douglas⁽²⁰⁾ type production function, in which the level of industrial production is mainly determined by the ratio of white collar workers to production workers. The precise relationship used by Pondy is:-

$$Q = \theta_0 S^\sigma \left(\frac{A}{P}\right)^\alpha K^\beta p^{1-\lambda}$$

where

- Q = total output in numbers of physical units
- A = number of white collar workers.
- P = number of blue collar workers.
- O = a constant (called by Pondy a productivity scale factor).
- K = capital intensity per production worker.
- S = an index that represents the number of distinct occupational specialities accounted for by the labour force of the organisation.

σ, α, β and λ are constants having values between 0 and 1 and remain the same for all organisations and industries.

Pondy used the term 'administrative intensity', and defined it as the number of white collar workers divided by the number of craftsmen operatives and labourers employed by the organisation. In his mathematical model of a manufacturing firm, he treats administrative intensity as an input factor analagous to labour and capital, and assumes that it is set so as to maximise profit or⁽²¹⁾

"..... more generally to maximise the dominant manager's utility function".

Testing his model against data from 45 manufacturing firms, Pondy found that administrative intensity decreased with organisation size, and increased with functional complexity and the separation of ownership and management. It is a weakness of Pondy's approach that he makes assumptions about the constants in his formula, and assumes also that

output of a firm is determined by a limited range of factors, such as those he designates A, P, K and S. Nor does he give consideration to such factors as the nature of the industry in which the firm operates; whether the firm is, for instance, a high volume consumer goods manufacturer or a low volume, high price manufacturer of capital goods. In addition, no mention is made of market conditions, amount of research and development, cost and price structures or the special requirements of any categories of labour.

Even if all the variables referred to in the previous paragraph are held constant, the fundamental question remains as to whether the proportion of white collar workers in a firm leads to higher productivity. Reviewing a series of research papers, Dogramaci⁽²²⁾ comments on the use of ratio variables as one method of dealing with a problem such as this with so many variables. This methodology involves, according to Dogramaci:-

- " (1) Investigating the co-variations between productivity - output and number of production workers, and administrative intensity - number of administrative employees and production workers - and
- (2) Taking two different points in time and investigating the co-variation **between percent increase or decrease in labour productivity and percent increase or decrease in administrative intensity**".

Productivity of the Administrative Component

The Institute for Social Research at the University of Michigan was instrumental in developing a series of studies concerned with the productivity of various occupational groups and functional areas in different types of organisations. One such study by Katz, Maccoby and Morse⁽²³⁾ focused on the productivity of clerical workers, and measured it by means of a budget system, which recorded the ratio of actual clerical time spent in completing a given amount of work to an expected base. The Michigan researchers were aware of the limitations of this approach to productivity measurement and of the inadequacy of their criteria, but were prepared to justify their strategy on the following grounds:-

"Since the flow and volume of work are not controlled by the sections, and since they do not vary appreciably between sections, higher and lower productivity is a matter of the number of man-hours required to get the job done".⁽²⁴⁾

A further study by Morse and Reimer⁽²⁵⁾ on a group of clerical workers relied also on clerical labour costs as a means of measuring productivity. This research examined the relationship between the productivity of clerical workers and their participation in the decision making process. Although the overall results were inconclusive, due to the possible impact of a "Hawthorne effect", it is significant to note that:-

"The measure of productivity then is a measure of clerical costs. These clerical costs are expressed in percentage figures calculated by dividing the actual clerical costs by a constant standard of cost expected for that volume". (26)

A more comprehensive examination of productivity in administration was undertaken by Mott (27) in a study of the Office of Administration at the National Aeronautics and Space Administration (N.A.S.A.) and the Office of Financial Management in the U.S. Department of Health Education and Welfare. Mott related a productivity measure to levels of skill and 'variations in formal co-ordination', and concluded that productivity was mainly a function of both of these factors in a task structured work setting. Mott defines task structuring as-

"A role orientated concept that measures the extent to which necessity for improvisation has been removed from the task". (28)

He argued that the degree of task structuring is an important variable in the study of administrative productivity. In offices where the work was less structured, these factors are over-ruled by the 'climate' of the work setting. The climate of the work setting, Mott suggests, is the "rational atmosphere of trust which promotes morale and cohesiveness" and is influenced by managers and supervisors who display 'rational trust' traits. According to Mott:-

"The rational trust leader is believed first to be aware of the points of view, needs and problems of those who work for him and take them into account (not necessarily to agree with them) when he makes decisions; second, to make fair rational decisions, usually based on established and known criteria and third to conform in his behaviour to known standards".⁽²⁹⁾

The organisational climate generated by rational trust leaders is, in Mott's view, a condition without which high levels of productivity in administration are unattainable in work settings in which the task structure is low. When task structure was high, the opposite relationship occurred, in that few measures of supervisory behaviour accounted for variations in the productivity index, and in such cases technical skills were of greater significance.

The inconclusiveness of many of the earlier studies of clerical worker productivity suggest that there are conceptual difficulties in attempting to transpose the principles of productivity measurement from one type of economic activity to another. Whilst cost and productivity measures are frequently related to each other, they are not identical. An increase in productivity may be reflected in a cost reduction, but a cost reduction is not always the result of an increase in productivity. Thus these two measures are not synonymous, and they should be maintained as distinct separate indicators of the production process.

Problems of input measurement specifically related to

office work are similar to the more general difficulties of measuring the input factor of time, labour effort, skill, capital and management expertise in such a way that they can be unified. For this reason many studies of service productivity⁽³⁰⁾ do not attempt to incorporate all the input factors, but limit their considerations to a simple measure of labour productivity. The practical value of limiting input measures to those of labour was emphasised by O.E.E.C.⁽³¹⁾ since labour was perceived to be one of the most significant factors which could be isolated. With few exceptions, the nature of office work is such that labour is the most significant input factor. Any substantial increase in the productivity of offices will be likely to be attained as a result of labour productivity, since it is labour costs which account for the major proportion of the inputs.

The problem of applying productivity concepts to the field of clerical work is made more difficult by the problems which can arise in defining the output of clerical workers. For activities such as office work, the concept of a unit of output is ambiguous, and for practical purposes the application of unit pricing is impossible. Much of the output of an office is in the form of services and services, by nature, are in many cases perishable, leaving the economist with no physical unit of output that may be

counted. Adam Smith commented on this dilemma when referring to workers in offices, and claimed that:-

"..... like the harangue of the orator or the tune of the musician the work of all of them perishes in the very instant of its production".(32)

Nevertheless, the continuing increase in the size of the clerical work force emphasises the importance of ensuring that some criteria on productivity are established. Some analysts have introduced clerical work measurement techniques, in an attempt to establish quantifiable outputs and as a means of providing a more rational control of office work. A relationship between work measurement and productivity may be assumed, but one is not necessarily a simple multiple of the other. Work measurement is an index of the activity intermediate between input and output; productivity measurement is concerned with the linkage between inputs and final products, irrespective of the nature of the final product. For example, in the case of a reprographic section, it might be assumed that a unit of output might be the number of copies of a certain quality produced over a given period of time. Any real productivity increase would result only if an increase in the number of documents produced augmented the final product - in this case the service of communication.

Office Productivity - The Conceptual Framework for
this study

The studies of administrative overheads can be said to focus generally on 'firm' or organisational productivity, with productivity increases sought through an improvement in the performance levels of the administrative component. By comparison, the research on productivity of the clerical worker group involves an attempt to explain variations in administrative performance through an analysis of contingency or situational factors. Some of the limitations of earlier work relate to the lack of a clear distinction between the relationship of administrative productivity to organisational productivity, and the awareness of needing to develop criteria for administrative productivity as an end in itself. As the previous chapter indicated, total productivity improvements can be achieved from a wide range of disparate managerial techniques which stem from numerous disciplines. It may be argued that the real difficulty in this area of enquiry is that "administrative productivity" is a popular phrase rather than a theoretical concept, and that, until such concepts are developed for this variable, no significant advances can be made. Normally, the dependent variable 'productivity' encompasses aspects of the behaviour of the individual or the work group carrying out specific tasks, and an evaluation of

the extent to which the results or output of the activity are judged to be supportive of the goals of the organisation as a whole.

The evidence, to this point, seems to suggest that productivity measures refer to the relationship between the results of work activities (services and products) and the cost of carrying out work (administrative overheads). The results of work activities may be evaluated in terms of 'effectiveness' i.e. the results of the product or service. The concept of effectiveness as a component of organisational productivity was studied by Mott, and his definition of effectiveness is that it involves:- (33)

".... the organisation's ability to adapt to changing conditions both internal and external (adaptability and its ability to cope with temporarily unpredictable emergencies (flexibility))".

The concept of effectiveness applied to office work would therefore attempt to evaluate the various services which were the output of clerical activity. Thus, for example, the degree to which various offices are seen to be distinguishable from each other by means of their communication services, their adaptability and their flexibility would be a measure of effectiveness.

The second measure of productivity, the cost of carrying out work may be described in terms of measurement of 'efficiency'. Efficiency will focus on the manner in which resources are combined into final products or services; it will not relate to the appropriateness of the output but only how the output is provided. Simon,⁽³⁴⁾ in his chapter entitled "The Criterion of Efficiency", describes the concept in the following terms:-

"The criterion of efficiency is most easily understood in its application to commercial organisations that are largely guided by the profit objective".

Acceptance of the desirability of applying efficiency criteria to non-commercial activities and to the internal operations of organisations, where work is undertaken which cannot be evaluated in financial terms, leads Simon to deduce that:-

"The concept must be broadened if it is to be applicable to the process of decision where factors are involved that are not directly measureable in monetary terms".⁽³⁵⁾

Consultancy organisations and management services groups have more recently been paying increasing attention to the problem of clerical worker productivity by concentrating on efficiency aspects of clerical work.⁽³⁶⁾ As a result, there has developed a number of measurement techniques which, when applied, can raise standards of

efficiency but do not make any evaluation of effectiveness. Productivity, interpreted as a two dimensional concept, suggests a more comprehensive and more empirically valid approach to a study of clerical worker productivity. For many work activities, the distinction between efficiency and effectiveness does not constitute a major problem. In the case of much blue collar work, targets are specified and their achievement satisfies the effectiveness criterion. To accomplish these tasks within a given time satisfies the efficiency criterion. However, much of the work of office workers raises difficulties in making similar distinctions. For example, consideration of the reprographic activity referred to earlier in this chapter will show that it is possible to be efficient at the production of information, but the effectiveness of the output in the service of communication raises problems of measurement and will, in most cases, be evaluated by judgemental factors.

For the purposes of this study, it seems logical therefore to include both efficiency and effectiveness as two independent dimensions of productivity, when attempting to further our understanding of the concept in relation to clerical workers. Since productivity is the main unit of analysis, and since efficiency and effectiveness

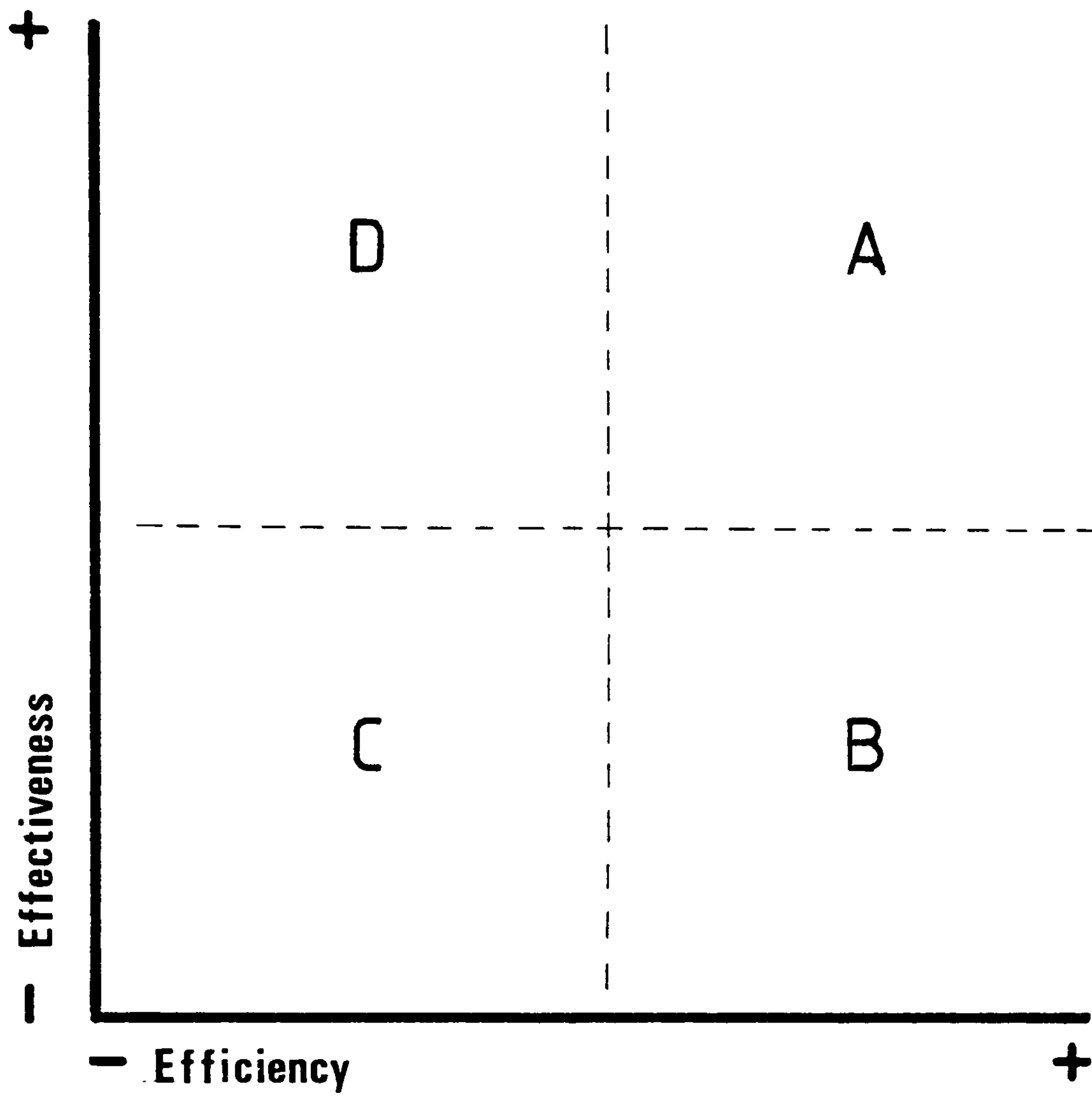
have been chosen as the most obvious and fundamental aspects of variation, it is possible to link them in the form of a simple model with two axes. (see Fig. 5.1)

Once measurements can be made of efficiency and effectiveness, it should be possible to describe a range of offices in terms of the productivity dimensions as illustrated. Thus offices in Group A would be highly effective in terms of the service of communication, and would achieve this by the efficient use of resources. Group B would be seen as working efficiently, but failing to provide a satisfactory service of communicating and recording of information. Group C offices would give an unsatisfactory service, and display evidence of slow and inefficient working, and Group D would be judged as effective, but a slow work rate and/or overmanning would mean that administrative overheads were high.

It is on these two dimensions of productivity that the research for this study is based. The productivity of an office can be described in terms of a simple model (illustrated in Fig. 5.1) with two axes - efficiency and effectiveness. By linking these two components, it can be reasoned that an office which is efficient without being effective cannot be highly productive, when measured on an index which includes a results

Fig. 5.1.

A Model of Office Productivity.



assessment. Similarly an office which is effective without being efficient would be limiting its productivity rating to that of a measure of an intermediate activity. A more comprehensive and meaningful interpretation of productivity in administration is possible by considering productivity as the combination of the two variables of efficiency and effectiveness.

Such a sub-division of productivity can be of interest but, as such, it has no explanatory significance. What are the causes of variations in efficiency and effectiveness? Are these variations more likely to occur in different economic sectors or in different sizes of office? Once efficiency and effectiveness can be measured, a much greater awareness is possible of the nature of the productivity of the administrative service. Technological changes, for example, can be evaluated in terms of their influence on effectiveness and on efficiency, and thus a more valid and acceptable appraisal would be possible. In a similar way methods of wage bargaining could take into account a measureable productivity factor which could be used, instead of the largely unsatisfactory traditional tools of measurement. Viewed as a two dimensional concept, administrative productivity can then be understood as relating not only to the various procedures which are followed in the work of an office,

but also to the workload available. In most practical instances involving unpredictable peaks and troughs of workflow and unforeseen delays, it is not possible to be both fully efficient and fully effective. Frequently, the mechanisation of office systems results in higher efficiency but ignores the effectiveness criterion. Efficiency is usually measured in terms of output divided by input, whilst effectiveness is assessable in terms of quality and timeliness of output, and the extent to which these match the needs of the user of office services.

Conclusions

This chapter has reviewed the application of the productivity concepts to administrative activity within organisations. The significance of increasing administrative overheads has been identified, and some previous studies in this field have been considered. A common feature of many of these previous analyses has been the tendency to divide workers into classes labelled 'productive' and 'unproductive'. The implications of such a classification are that office workers, being 'unproductive', are excluded from productivity evaluations, since they are limited to "output per productive worker". The contention of this study is that meaningful assertions about productivity

in offices must include an awareness by management of the costs of administration (37) and the contribution of the administrative unit to organisational performance.

The latter part of this chapter depicted the approach which is to be taken for the outline of the research to be carried out. A conceptual framework for office productivity was developed, and the two dimensional model outlining its main components was set forth. The extent to which the two components of office productivity vary in a number of offices in several organisations is the test of the hypotheses which are to be generated by this model. The next two chapters comprise an analysis of these two variables, and a specification of the measures which are to be adopted for the research.

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CHAPTER SIX

MEASURES OF EFFICIENCY

Introduction

The next two chapters are concerned with an account of the selection of measures of efficiency and effectiveness for the offices which were to be studied.

In the case of efficiency measures, the problem was mainly one of selecting, from a number of fully developed measures, those which were appropriate to the particular features of this study.

In the case of the effectiveness measures, the problem was much more difficult, in that completely new measures had to be developed and tested. Although some of the available measures of efficiency could have been adapted to suit this research, there are problems in transposing a set of measures from one area of research to another.

This chapter reviews the independent component efficiency, and illustrates that it is more readily understood in relation to office work, when it is conceptualised as a variable of the information process within a systems view of organisations. Thus 'process' and 'system' are considered, and the inter-relationships which comprise the information sub-system of an organisation are

illustrated, before the measures which have been selected are described, and the procedures for applying them are outlined. Two separate measures are proposed, each one testing the efficiency of the office from a quite different standpoint, but aiming to focus on the essential operational characteristic which, according to Lipetz,⁽¹⁾ is:-

"The ratio of that which is made available during some time period for satisfaction of human wants (production), to that which is given or pledged during some time period to secure such satisfaction (cost)".

Studies of Efficiency

There is considerable confusion between the meaning of efficiency and the meaning of productivity, and this has often resulted in the terms being used synonymously. The National Board for Prices and Incomes chose to replace the term 'productivity agreements' with 'efficiency agreements' in one of their reports, and used the new term to describe agreements which covered:-

"..... close and continuing co-operation between managements and workers, so as to achieve and maintain the highest standards, in the use of both equipment and manpower".⁽²⁾

Although efficiency has attracted considerable attention from writers on organisational performance, the concept, when considered in relation to offices, has become identified with a range of connotations which associate it with a mechanistic, non human theory of administration.

Pfiffner and Sherwood⁽³⁾ express this view and describe efficiency concepts as:-

".... a philosophy of human motivation which viewed labor as a commodity, each individual being his own agent operating within the market place. Under this system of values, owners and managers did not view themselves and their enterprises as insulated from the broad problems of human welfare".

Organisational or functional efficiency is best conceptualised as an internal standard of performance, which relates only to work volume, and not to the nature or the relevance of the tasks performed. It is thus independent of the particular criteria used to evaluate input and output. Thompson⁽⁴⁾ notes the tendency of organisations to assess efficiency and defines the concept as follows:-

"Efficiency, which allows for an assessment of whether a given effect was produced with least cost or whether a given amount of resource was used so as to achieve the greatest result".

Because improving efficiency involves doing better what the organisation is currently doing, it is common to interpret the external pressures on the office service as demands for greater efficiency. For example, an office which produces pay-slips uses a certain amount of worker-hours and material to obtain the output. Its

efficiency is determined by counting the number of payslips produced per worker-hour and unit of material consumed. This can mean that efficiency may be regarded as a socially valued ideal, which may be interpreted as an argument to develop or restrict policies which should be evaluated by different criteria. In other words, many arguments which are being propounded on the basis of efficiency are not necessarily decided on such terms.

Buckley states that the ultimate objective in management is to attain goals in the most efficient way. This, he claims, involves making 'efficiency judgements', and these require two sets of data, process data and systems data. Buckley⁽⁵⁾ distinguishes the two as follows:-

"A process can be said to yield activity data, whilst a system gives us energy data".

Buckley's process-systems approach to the study of the efficiency of administration is particularly useful, since it makes provision for:-

- (a) The analysis of the role of the office as an information processing unit, and
- (b) The study of the office as a sub-system of the organisational system.

Efficiency and the Concept of Process

The word 'process' is used extensively in the literature of various disciplines, and may be thought of as a transformation which moves things or activities from one state to another. Buckley defines process as:-

"..... a set of activities pertinent to a goal or result". (6)

Clerical work is concerned with the collection, processing, storing and issuing of information for the operation and management of organisations. To view office work as the organisational information processing function makes it possible to apply a more meaningful notion of the term 'efficiency' to administration. Thus the office service can be regarded as a process, which transforms raw data into information for decision making, and as such it is amenable to an efficiency rating. Since data represent potential information, it is only through their restructuring via the information process that they are converted into information. In most offices, this transformation will be a manual, mental or automated process, and will be measured by the amount of resources used to produce a unit of output. Conversely, Buckley contends that efficiency measures cannot be developed from only activity or process data, since the efficiency equation requires both the activity scale and the energy

scale, and the latter, he claims, is based on systems data.

Administration and Systems

Modern systems theory evolved as a consequence of the problems of the growth of the horizons of knowledge, and in recent years both management practitioners and academics have come to recognise the contribution which it can make to the study of organisations. The consideration of efficiency in relation to administration can be advanced, by assessing it in terms of a 'systems' approach. The term 'system' has been defined by numerous writers in the fields of management, sociology, economics and other disciplines. Bertalanffy⁽⁸⁾ defines systems as:-

"Sets of elements standing in interaction".

and Kast and Rosenzweig⁽⁹⁾ give the definition as:-

".... an organised or complex whole: an assemblage or combination of things or parts forming a complex or unitary whole".

Similarly, Hall and Fagen⁽¹⁰⁾ define system as:-

".... a set of objects together with relationships between the objects and between their attributes".

A more precise definition is given by Optner⁽¹¹⁾:-

"A system is defined as some on-going process of a set of elements, each of which are functionally and operationally united in the achievement of an objective".

These definitions illustrate the most significant features of a system. Firstly, a system is goal orientated, it exists to accomplish an objective or purpose. Thus a business firm exists to make profits, a university to provide education and research, and an office to provide the information which an organisation needs in order to maintain itself. A second feature of a system is its interdependence and interface with its elements. Thus any one system may be viewed as a micro-system within a macro-system, both of which can work together in the furtherance of the system's objectives. For example, the personnel system, the financial system and the stock control system have direct and specific purposes, and yet they combine to form a larger system, the organisation as a whole. Frequently, sub-systems can be seen to combine in a hierarchical form, and this concept of various levels of systems has been likened by Boulding⁽¹²⁾ to the levels of systems in the universe, ranging from the atom as the basic micro-system to the universe as the macro-system. An organisational information system would be analogous to a macro-system whilst the micro-system could be, in terms of office work, a basic clerical operation eg. typing. A third characteristic of a system is that it displays co-ordination and integration of its elements and sub-systems; thus, as it functions, it adjusts and responds

to various forces, thereby enabling it to operate e.g. in a commercial organisation, information is compiled and evaluated about markets, customers, products and other matters, and policies in this regard are altered and adjusted when necessary in the interests of the organisation's objectives.

The Office as an Information System

The previous section illustrated that a system can be seen to have several significant features: goal orientation, interconnected elements, and co-ordination of functions and operations. The administrative or clerical system of an organisation has the same features, and to display the attribute of efficiency must accomplish the following:-

1. It must serve the goals of the organisation. The information which is collected, processed, stored and disseminated must be linked to and consistent with the furtherance of organisational goals.
2. The office must devise and operate a series of interconnected and inter-related information processing activities. Specifically, these will consist of individual information systems such as payroll, financial information and personnel information, and it is possible that these will be

linked to a master system which can produce information reports for management.

3. The office must make provision for the maintenance of the information system i.e. a continuous evaluation of the relevance of the work being carried out, to ensure the activities are consistent with the policies of the organisation as a whole.

Factors Influencing the Administrative Sub-System

Whilst each sub-system may acquire individual characteristics as a result of specialist functioning, the organisation as a whole and its sub-systems are influenced by technical, economic and social forces.

(a) Technical

Since offices vary in the extent of the range of machines and equipment used, they can be seen as technical units and subject to the influence of technology. Schon⁽¹³⁾ defines technology as:-

" any tool or technique, any product or process any physical equipment or method of doing or making by which human capability is extended".

In terms of this definition, technology can be seen to extend from basic devices like duplicating equipment to more sophisticated word and data processing systems.

Although technology in manufacturing industry has had a more consistent effect on the nature of work, there is evidence⁽¹⁴⁾ to suggest that the development of computerisation has resulted in a significantly less uniform impact on the office than on factories.

(b) Economic

Similarly, since the resources which an organisation will be prepared to allocate to information handling will be limited, the office service may be regarded as an economic unit. In the event of an office being seen in this context, the question arises as to whether criteria can be established to ascertain the value of production. Because it has always been easier to measure costs than to measure values, formal cost accounting has concentrated on the costs of information production but has ignored the value of what is produced. Without value accounting, cost accounting is unbalanced and this explains the conventional economic view of office work as an 'overhead'. There could be a considerable benefit to be derived from regarding the office as an economic unit, in terms which include an assessment of the value of the information output as well as the costs. The value approach to information analysis is emphasised by McDonough thus:⁽¹⁵⁾

"The essence of information is the property of value - the use of information to further well-being. Information processing in the past has suffered because it was assumed that it was similar to the processing of a physical product".

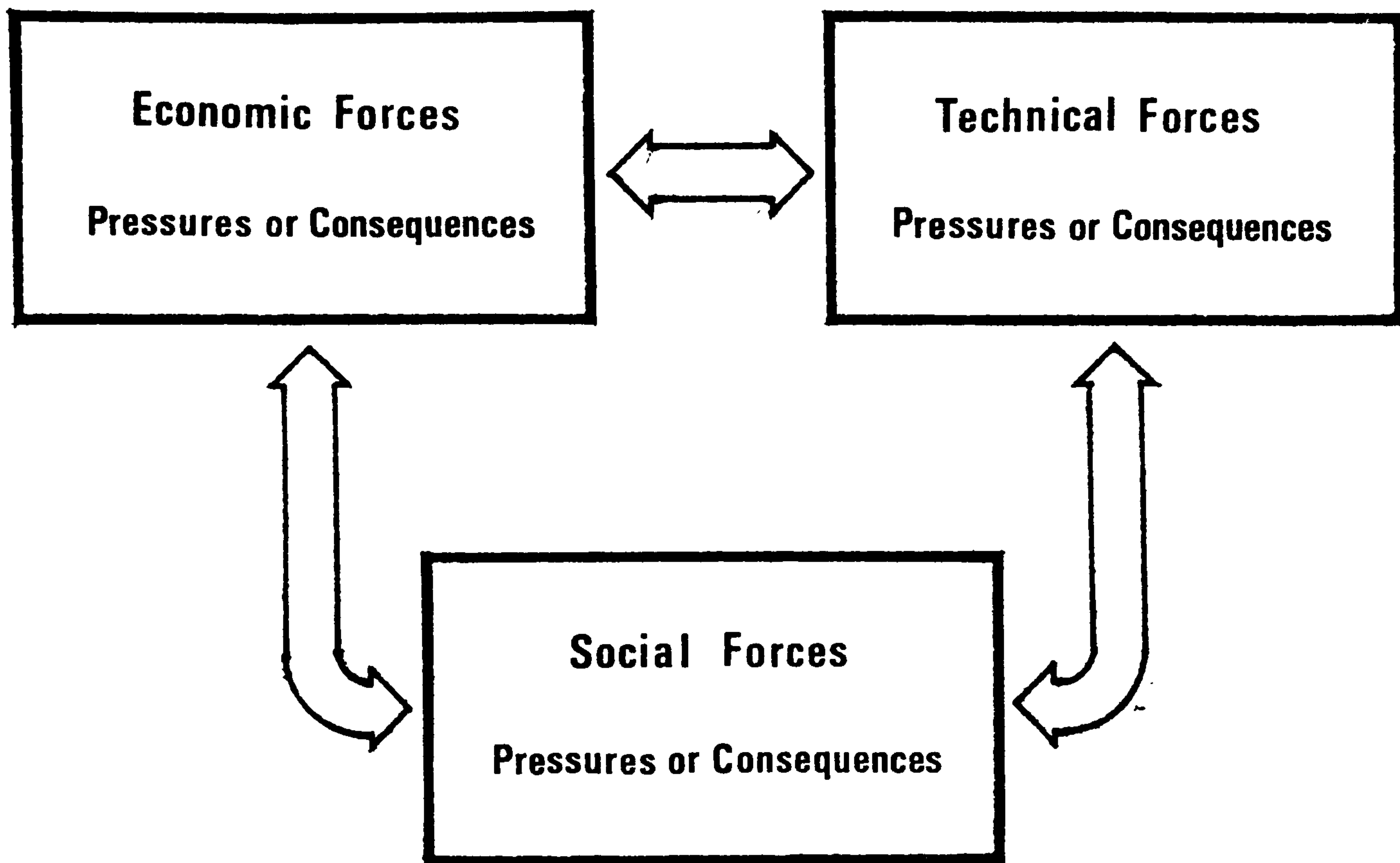
(c) Social

Finally, since offices comprise human beings working together, it is in this sense a social unit. The social interaction of the work experience of office workers has been the subject of extensive research. The Hawthorne Studies resulted in the awareness that employees bring to work a complex set of social needs and motives. Much of the later research on the 'social' aspect of office work has centred on the nature and functioning of work groups, and the significance of formal and informal grouping on the performance of people at work, particularly with regard to the influence of certain 'reinforcers' in the work environment i.e. colleagues and supervisors. (16)

Thus, since each organisational system or sub-system is subject to technical, economic and social forces, any changes which might occur in any of these forces will have repercussions on the other forces, thereby giving the system its individual characteristics. The inter-relationships are depicted in Fig..6.1 on the next page.

Fig. 6.1.

Organisational Efficiency.



Criteria for Selecting Efficiency Measures

The following criteria were considered relevant in the selection of the measures of efficiency in the process systems model of administrative productivity.

1. Flexibility.

The measures were intended to provide results about various offices in two different industry groups. They also had to be capable of giving individual scores, so that the results could be represented in other ways e.g. by office size.

(2) Simplicity

Any measures used had to be simple to use, since it was not always possible to conduct interviews with the respondents. Therefore research methodology had to include tests of efficiency, which would be understood by various levels of employee, and which could be made operational for the purposes of this study.

(3) Relevance

It was considered important to select only measurement criteria which were appropriate to the work of an office i.e. which would be seen to apply to the work of a clerk, typist or office machine operator. Many of the conventional economic measures of efficiency have developed primarily with an emphasis on physical production. The output of office work is information, an abstraction which cannot be treated as a physical product.

(4) Value for General Use

In addition to their use for this particular study, the measures had to have some value as a means of adding to the existing knowledge about the way in which offices operate as processors

of the resource of information. The development of a general framework for analysing the efficiency of the management of information in organisations is one of the anticipated results of this study. As society moves from an emphasis on physical production to one that focuses more and more on the production of information and knowledge, there will emerge the need to develop more formal measures of information production, just as in the past measures of physical production were created.

Perception of Organisational Performance by Individuals

A central problem in the study of organisations concerns the measurement of the variation of organisational characteristics. This poses the question of whether or not an assessment by an individual is a valid indicator of organisational performance. Hague and Aiken⁽¹⁷⁾ recognise this problem and observe:-

"Organisations are composed of individuals working in various jobs which are arranged in different structural configurations and workflow".

Nonetheless, they take the view, that it is frequently only through the medium of an individual's perceptions that it is possible to discover certain features of an organisation's structure and performance. Whilst

aggregates of individual observations must always carry the possibility of responses which could display incorrect aspects of the organisation, the conclusions formed, though limited in this respect, may nonetheless be considered as a valid indicator of the nature of the organisation.

Barton⁽¹⁸⁾ distinguishes three approaches to the measurement of organisational attributes. These are

- (a) Institutional Records
- (b) Direct Observations
- (c) Reports of Samples of Members.

(a) Institutional Records can be in the form of basic files on activity levels, or other data which are available in a form which can be used or adapted for the purpose of the study. Becker and Neuhauser⁽¹⁹⁾, in their study of hospital efficiency, used institutional records to provide a cost index and a man-hour index. The cost index was based on the cost per hospital of providing one standardised day of patient care. The man-hours index was based on the number of employee man-hours in each hospital used to provide the same standardised day of patient care. In both cases, the higher each index, the less efficient the

hospital. Although the organisations which participated in this study maintained records of numbers of personnel in various activities, none of the data was in a form which made possible the calculation of an index of efficiency.

- (b) Direct Observations are 'ratings' of performance by the observer, on the basis of his interpretation of what he perceives during a period of time spent with the employees whilst they are engaged in normal work routines. Not only is it impossible to eliminate the influence of a 'Hawthorne effect' in such instances, but also the nature of office work is such, that there are many aspects of the work which cannot be reasonably assessed on an efficiency criterion by direct observation e.g. records checking, accounts work. Further, since office workers are in general not subjected to the conventional techniques of work study and work measurement, it is highly probable that such observations would produce adverse reactions on the part of the employees, and thus no usable results would emerge.

(c) Reports by Samples of Members tend to be reports by individuals rather than factual accounts of aspects of the organisation. Although measurements of organisational properties may be derived from data gathered at various sources, the reports by samples of members tend to be aggregates of responses to organisational characteristics, incorporating aspects of structure and performance, rather than an objective report of the attributes of the organisation. Barton comments on the reports of crew members that:-(20)

"A ship most of whose crewmen are happy is a happy ship".

suggesting that they are reporting not on themselves but on the organisation in general. He contrasts this with institutional records which describe the organisation by means of standardised sets of objective reports, and thus refer directly to the properties of the organisation, frequently in financial terms.

The basis of the measurement scheme chosen for this

study was the reports of samples of members. The reasons for this choice emerged in the early stages of the field work for this study, when preliminary interviews were conducted with senior management in the sample of firms which were to be studied. It became apparent during these interviews that no other usable measures of efficiency would either give valid results or would be agreed to by the employees in the offices to be investigated. None of the organisations returned institutional records which could give information about the efficiency of the office service, and the artificial work atmosphere created by the direct observations of a researcher in an office would have made any findings, at best, questionable. It is further most unlikely, that the organisations who participated in this study would have permitted the adverse reactions of staff as they became aware of the presence of an observer at their work.

Measures of Efficiency

This study is based on the proposition that efficiency

is an essential component of the more complex concept of productivity in administration. The efficiency variable is one of the dependent variables, and is conceptualised as comprising the optimisation of the means by which resources are combined into final outputs.

The measures of the variable efficiency to be used in this study are now specified as:-

(a) Employee Perception Index.

(b) Executive Evaluation Index.

(a) The Employee Perception Index

This index measures certain aspects of administrative efficiency, on the basis of the aggregates of reports of the members of staff of each office studied. (Details of the sample of offices used in this study are contained in Chap. 8). The method of measurement

consisted of asking as many as possible of the clerical workers employed to respond to a number of questions in a printed questionnaire. The general format of the questionnaire was to ask each respondent to reply in one of five ways to a statement about the office in which they worked. Each response had a score, and the Employee Perception Index was obtained by averaging the scores for responses to various statements. From these responses, it would be judged that offices whose employees returned high average scores would be deemed to be more efficient than offices whose employees returned low average scores.

(b) The Executive Evaluation Index

Similar to the Employee Perception Index, this index relied on reports of a different category of the members of each organisation. Various senior executives of the firms in the study were asked to evaluate the work of the general office. In most cases (but not all) the executives were interviewed, and were asked to complete a questionnaire and to comment on aspects of the companies' offices. Comments on individuals or on particular activities were avoided, emphasis instead being made on features of the office function as a service to the organisation. In instances where

interviews were not possible, the request was made to the organisation to issue the questionnaire to a senior executive, whose duties brought him into regular contact with the work of the office. In cases where several senior executives completed a questionnaire, a specific request was made to complete the form independently. In order to measure efficiency, the respondents were asked to describe the extent to which they agreed on the importance to the firm of certain efficiency indicators.

The various ratings of each executive were averaged to give a mean value, and thus an average efficiency index for each office was calculated. The data thus generated made it possible to rate each office on a scale - the higher the Executive Evaluation Index, the more efficient the office.

Conclusions

The construct of administrative productivity is conceptualised as comprising the two independent variables, efficiency and effectiveness. The offices which were studied to test the model were measured for efficiency on the following basis:-

- (1) The Employee Perception Index - efficiency as seen by the employees of the office.
- (2) The Executive Evaluation Index - efficiency rated as the service provided by the office.

The above measures were used for various offices in the firms which were studied. By calculating a simple mean of the individual office scores, it was possible to give results for different categories of office.

This chapter has described the procedures which were used to measure one of the two separate components of the model of office productivity. In many cases efficiency alone may be a standard by which an office is judged. Frequently organisation and methods studies recommend the transfer of the efficiency techniques of shop floor work study to the office, and use these as productivity criteria. In this chapter, importance has been placed on the 'mechanistic' aspect of the efficiency measures i.e. they ask about volume of production and what cost in terms of resources consumed. They are therefore an internal standard applied to the outputs of the offices studied. The next chapter reviews the second of the two components of productivity - the external standard of effectiveness.

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CHAPTER SEVEN

MEASURES OF EFFECTIVENESS

Introduction

In recent years, our notion of the role and function of the office has undergone considerable change. Earlier models assumed a closed system with well defined boundaries, and the weakness of these approaches was soon apparent when they were used in attempts to explain change. The most striking example of the deficiencies in the closed system viewpoint are evidenced in the extent to which the impact of computers has not been confined to the office⁽¹⁾. The open perspective on the office service recognises that an office is a unit of activity which exists in a dynamic environment, and it can best be understood by taking that environment into account.

This chapter examines and describes the selection of the measures of effectiveness which were used in the research. The chapter begins by considering some of the confusing and often overlapping interpretations of the two terms efficiency and effectiveness, in order to clarify some of the ambiguities which have arisen. An analysis is then made of the two main theoretical models of effectiveness, into which the literature on the topic may be grouped. Firstly, the goal approach is examined with particular reference to its relevance to the theme of the

research. Because of the unique features of the office service, the goal approach is rejected in favour of the systems resource model of effectiveness. This latter model is chosen, because it has as its central ingredient the relationship between the organisation and its environment, and because it is capable of providing a theoretical framework, by which different organisations and sections of organisations can be compared. Since the office provides an information service to the whole organisation, it is important to study its effectiveness in the context of this relationship. In addition, the approach chosen is considered general enough to enable comparisons of effectiveness in different offices to be made.

Efficiency and Effectiveness

Efficiency and effectiveness are often confused and because of this, misunderstandings and ambiguities can result. The university in which this thesis was written recently reduced the number of janitors. The efficiency of the remainder is certainly increased (more mail carried per man-hour, less idle time), but the effectiveness of the janitorial service is lowered because there is now often an absence of the service when it is required. In service activities, which invariably include demand fluctuations, it is unlikely maximum efficiency and

maximum effectiveness will be attainable. Frequently, office managers aim for efficiency, (e.g. number of key depressions per hour, number of works produced per hour), which is more easily measureable than effectiveness, and then ascribe to this measure the label 'productivity'.

Efficiency and effectiveness are inter-related, and in order to survive and grow, an organisation will aim to be both efficient and effective. For example, if an organisation reaches its goals, it is effective, but if it does so at an excessively high cost it is less efficient than it could be. Simon observes a stereotyping of efficiency which he claims:-

"is the result of the somewhat careless use of the term by overly enthusiastic proponents of the scientific management movement".⁽²⁾

The stigma which the term efficiency has acquired causes frequent avoidance of its use, and as a result it is given more socially acceptable pseudonyms. Perhaps the most outstanding example of this practice is the use of the term 'cost effectiveness', by many general texts on management, as a criterion of efficiency. In defining cost effectiveness, Albert states that there are two standard criteria by which it may be assessed:-

"The first of these is that a system is more efficient when it gives more units of effectiveness for a given dollar. The second states that a system is more efficient if it means less cost per unit of effectiveness".⁽³⁾

These criteria indicate that cost effectiveness is basically a euphemism for efficiency, in an attempt to rid it of its mechanical, non-human connotations.

Katz and Kahn distinguish between efficiency and effectiveness, by comparing the former to the degree of goal attainment, whilst the latter is the:

"maximisation of return to the organisation by all means".⁽⁴⁾

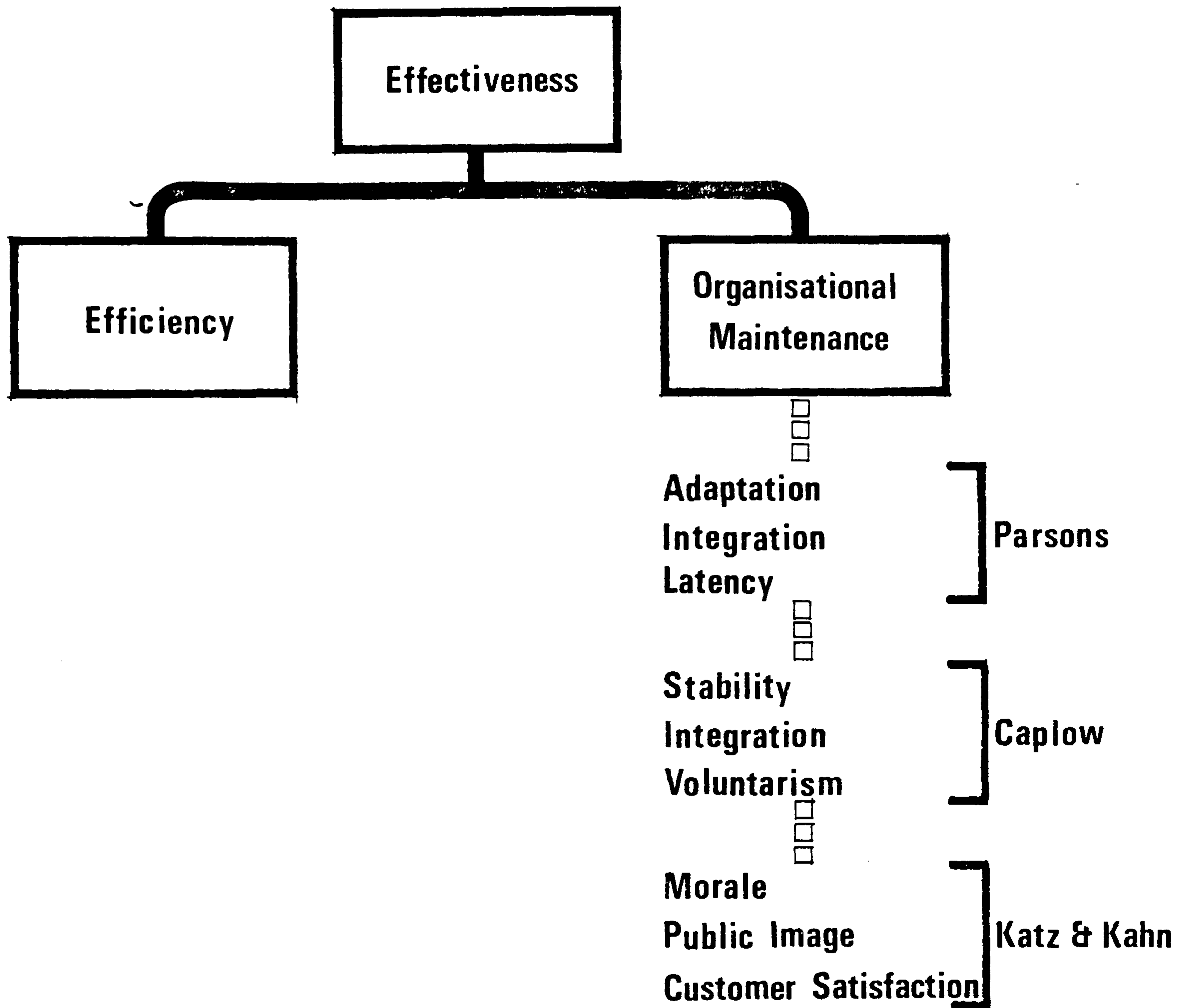
By effectiveness, Katz and Kahn appear to mean both the narrowly defined accounting measures of efficiency, and appropriate activities which are concerned with organisational maintenance. Commenting on Katz and Kahn's distinction, Becker and Neuhauser⁽⁵⁾ observe

"To some degree this distinction between efficiency and maintenance parallels the distinction between line (efficiency) and staff (maintenance), and between direct costs (efficiency) and indirect costs (maintenance).

Becker and Neuhauser's model is reproduced in Fig. 7.1 and it illustrates the various elements which comprise the maximisation of return to the organisation from all possible sources. Caplow⁽⁶⁾ also argues that organisational maintenance leads to higher effectiveness, and involves:-

Fig. 7.1.

Becker and Neuhauser's Model of Effectiveness.



"protection against these forms of internal division which threaten the existence of the whole".

The notion of making optimum use of environmental returns as a feature of effectiveness is echoed by Duncan⁽⁷⁾ who, like Becker and Neuhauser, includes efficiency as an ingredient of effectiveness. In addition, however, Duncan stresses the importance of flexibility to adapt to change, and the maintenance of equilibrium in the social structure. (see Fig. 7.2). Duncan's definition is as follows:-

"Organisational effectiveness is more than efficiency. The effective firm is efficient, it is adaptive and it maintains a satisfactory level of social equilibrium".

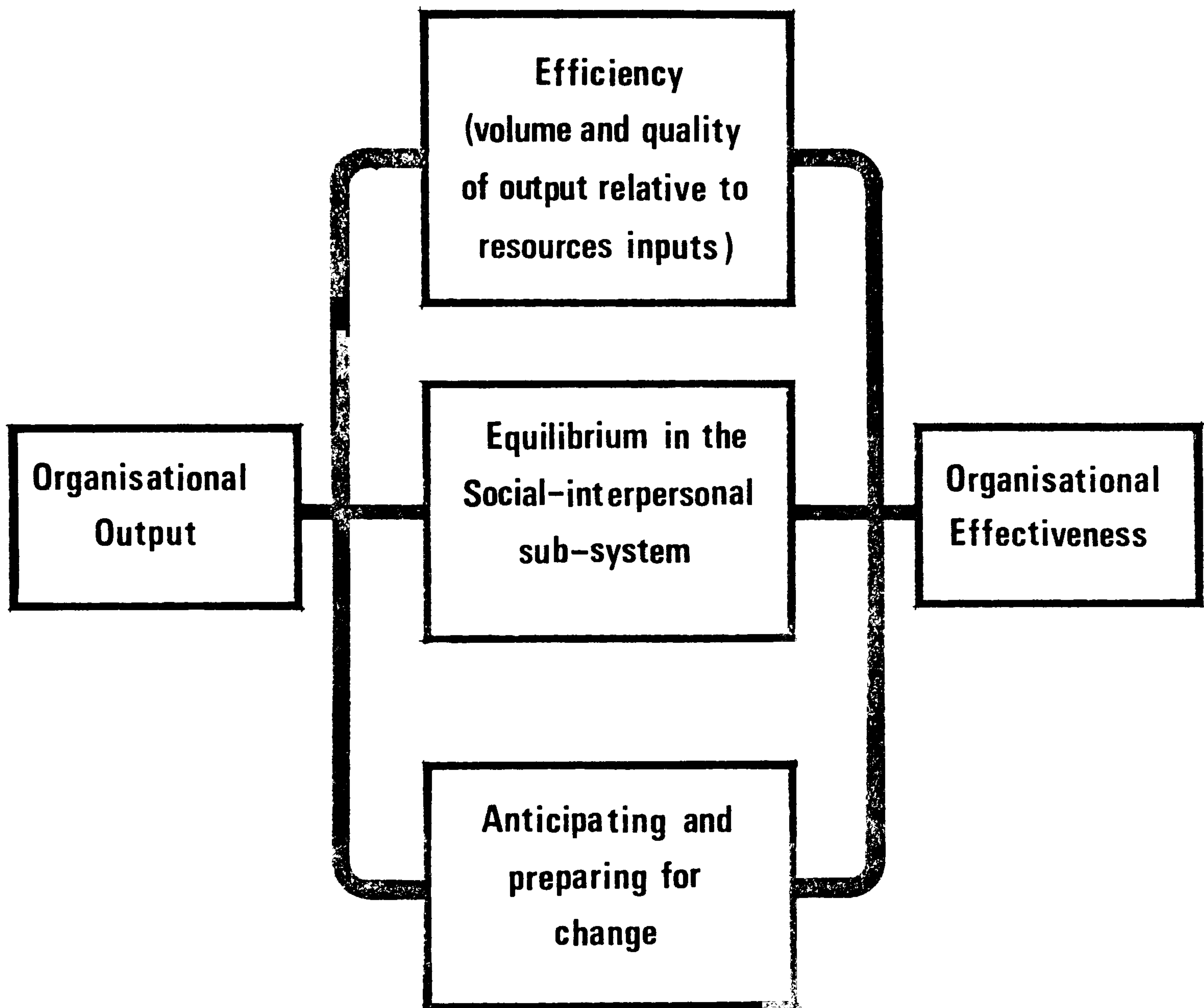
Duncan's model of effectiveness is focused on the inter-relationship between the individual, the environment and the organisation, and he regards efficiency as the order which can result from the specialisation and standardisation of the relationships between the major variables. Thus Duncan's distinction is explicit; efficiency is structure, whilst effectiveness is flexibility and adaptability.

The Concept of Effectiveness

Effectiveness is a more complex concept than efficiency. In general terms, it is the degree to which an organisation is successful in acquiring and using resources to accomplish its real goals. However, different organisations have different goals; most single organisations have multiple goals, and the various sections of organisational

Fig. 7.2.

Duncan's Elements of Organisational Effectiveness.



activity have goals that, to some extent, will differ from, and overlap with, goals of other sections. In the context of the service rendered by an office, many professional employees will tend to measure effectiveness against that of their professional colleagues in other organisations, rather than the overall value of the office service to the organisation as a whole. Frequently they will perform their services at a quality level out of proportion to the needs of the organisation, and will tend to encourage the users of the service to do the same.

The complexity of effectiveness is emphasised, when it becomes apparent that a variety of interest groups, individuals and organisations have contact with a single organisation, and each of these has a particular set of preferences and standards, by which effectiveness will be evaluated. Mott⁽⁸⁾ defines effectiveness as:-

"the ability of an organisation to mobilise its centres of power for action - production and adaptation. Effective organisations are those that produce more and higher quality outputs and adapt more effectively to environmental problems than do similar organisations".

Mott's definition is similar to that of Georgopoulos and Tannenbaum⁽⁹⁾, who imply flexibility and adaptability by defining organisational effectiveness as:-

"the extent to which an organisation, as a social system, fulfils its objectives, without incapacitating its means and resources, and without placing undue strain upon its members".

Both of these definitions reflect some general criteria of organisational effectiveness, for which adequate measurements have yet to be developed. Thus they can be regarded as starting points for the formation of more specific criteria, that can be made usable in a formal context.

Ideally, a standardised measure of effectiveness should be developed and made applicable to varying types of organisation, thereby making it possible to classify organisations (and parts of organisations) on a continuum from high to low effectiveness. Relatively few studies of organisations have dealt with the effectiveness of sub-units or functions, and even where the topic is analysed in terms of the organisation as a whole, diverse measures of the concept have been used. In one study by Mahoney,⁽¹⁰⁾ the relationships among as many as 114 characteristics were investigated as operational criteria of organisational effectiveness. The selection of valid criteria is one of the major obstacles to the empirical assessment of organisational effectiveness, and this is a particular problem in the case of service units

within organisations, of which the office is an example. The effectiveness of services such as those provided by an office is, to a great extent, bound up with the needs of users, and the satisfaction of those needs. A production unit is separated in time and place from those who use the products, but the users of the office service are linked to the production process, and studies of effectiveness must incorporate the need patterns of users.

The Goal Approach

Although there is a wide range of definitions and concepts used in studies of organisational effectiveness, one of the most common themes is that of defining effectiveness in terms of goal attainment. This approach focuses on the formal *raison d'être* of the organisation, or on some particular function, as the most adequate source of information concerning organisational goals. Etzioni⁽¹¹⁾ emphasises the criterion of goal attainment, by stating that the effectiveness of a given formal organisation,

"is determined by the degree to which it realises its goals",

whilst Steers⁽¹²⁾ states that:

"Effectiveness is the degree to which an organisation is successful in acquiring and using resources to accomplish its real goals"

It would be a simple matter to determine whether the goal had been attained, if an organisation had one clear and measureable purpose. But most organisations have complex networks of inter-related goals, and since these are constantly changing, the process of evaluation is naturally more complicated.

In support of the goal approach, Price⁽¹³⁾ maintains that, given the heterogeneous nature of organisational goals, effectiveness, measured by the degree of goal attainment, is possible if four guidelines are followed. These are as follows:-

1. Research should be on the major decision makers in the organisation, since it is the executives in high ranking roles who allocate most of the resources of the organisation, and who primarily determine the "desired state of affairs" which the organisation attempts to realise.
2. Research should be on organisational goals rather than on the private goals of individuals. Whilst private goals are important and must be satisfied if a high degree of organisational effectiveness is to be achieved, the evaluation of effectiveness must rely on the achievement of organisational goals rather than private goals.

3. Research should be on operative goals rather than official goals. The latter are the publicly stated goals, whereas the former are the actual goals, and in most organisations the two do not always coincide. The evaluation of effectiveness should be based on the achievement of the operative goals since these are the real goals.
4. Research should be on intentions and activities. Intentions refer to what the organisation is trying to do, or the direction in which it is moving. Activities are concerned with how resources are being allocated, and what people in the organisation are actually doing.

By adhering to Price's four conditions, the goal approach can be reduced to manageable proportions, but the measures he suggests are not general enough to be applied to different types of organisation. Studies of the effectiveness of business organisations, hospitals and government agencies, based on the goals that the major decision makers actually pursue, and the collection of data about their intentions and activities, have limited use, in that the results will only compare one type of organisation with another of the same type. Such studies do not result in empirical generalisations, which will facilitate comparison, and promote the development of theory.

In addition, there are practical difficulties in attempting to use the goal approach, when studying the effectiveness of sub-units of an organisation. In the case of the effectiveness of an office, the problem of identifying the major decision makers is of paramount difficulty, since, in many offices, major decisions are taken by individuals who are served by the office, and not those who are concerned with its day to day operations. Further, the distinction between organisational goals and private goals is particularly difficult for office workers in that, as producers of information, they are producing an intangible service, and since this is so, they are seldom fully informed of the value of what they produce, and the use to which it is put. For this reason, information workers will be more inclined than other groups of employees to interpret effectiveness in private, rather than in organisational, terms. A third difficulty will arise when separating the operative goals from the official goals of a service function. The officially espoused goals of an office will be to provide the best information service consistent with a realistic cost. The natural inclinations of office staff to pursue operative goals of remarkable ingenuity have been well documented by Parkinson, Chapman and Mant⁽¹⁴⁾. Finally, the fact that the office service, like other service sub-units, is separated from the mainstream of organisational activities, means that the ,

activities of individuals and their intentions are often unrelated. The goals of the organisation or the direction in which it is moving are frequently not reflected in what the individual office workers are doing.

It can be argued that the goal approach to organisational effectiveness is often adopted by researchers because it is a protection against the over-use of their own personal biases. According to Etzioni,⁽¹⁵⁾

"The (goal) model is considered an objective and reliable analytical tool, because it omits the values of the explorer, and applies the values of the subject under study as the criteria of judgement".

The goal model has been rejected as a basis of a measure for this study for two main reasons. Firstly, goals, since they represent the ideal, do not present the likelihood of realistic attainment. The constraints of daily work in an office environment impose substantial limitations on the realistic attainment of ideal states. Secondly, there is a danger in assuming that organisational goals can be deduced from the behaviour of individual members of the organisation. According to Yuchtman and Seashore,⁽¹⁶⁾:-

"..... goals as cultural entities arise outside of the organisation as a social system, and cannot be attributed as part of the organisation itself".

On this basis, it is highly probable that the goals of an office, if definable, will be external to the office itself, and in many cases will not necessarily correspond with the goals of the organisation as a whole.

Some additional criticisms⁽¹⁷⁾ which have been put forward, concerning the goal approach to effectiveness, are that this view ignores implicit or informal goals, by concentrating on official or public goals. The informal goals which form in an office environment will frequently engulf the official goals, since the office forms a separate work culture, which is characterised by informal groups and a wide range of interpersonal relationships.

The Systems Resource Model

This approach, an adaptation of which was used to measure the effectiveness of the offices for this research project, was first proposed by Yuchtman and Seashore. They define the effectiveness of an organisation:-

".. in terms of its bargaining position, as reflected in the ability of the organisation, in either absolute or relative terms, to exploit its environment in the acquisition of scarce and valued resources".⁽¹⁸⁾

This definition focuses on the interaction of the organisation with its environment, and accordingly, the greater the ability of the organisation to exploit its environment, the greater its effectiveness. Since the concept of 'bargaining position' implies the exclusion of any specific goal (or function) as the ultimate criterion of effectiveness, goals are replaced by organisational inputs and acquisition of resources as the primary criteria of effectiveness.

Supporters of the systems resource approach to effectiveness maintain that, compared with the goal model, it takes the organisation itself as the focus of investigation, rather than some external aspect of its functioning. Proponents claim also that it analyses the relationship between the organisation and its environment as a crucial element of effectiveness, and thus provides the basis for an empirical generalisation, which can include different types of organisation. An additional advantage is that dissimilar organisations can be evaluated, by comparing their various abilities to exploit their environment by competing for scarce and valued resources.

In a criticism of the systems resource model, Harrison argues that, at best, it is only a partial measure of

organisational effectiveness since it:-

"does not make the necessary distinction between resources that are available and those that are actually required by the organisation".⁽¹⁹⁾

Harrison also makes the point that another weakness is that it fails to distinguish between means and ends, and thus it incorporates a modified goalistic assumption. Scott⁽²⁰⁾ points out that, by focusing only on inputs, the systems resource concept assumes that the only valuable aspects of organisations are those which add to the acquisition of additional inputs. Thus outputs are ignored, and their significance may be overlooked. A further criticism is put forward by Price,⁽²¹⁾ who maintains that users of the systems resource approach recognise the need for general measures of effectiveness (unlike users of the goal approach), and claim that their studies produce such a general measure. Price claims that, in the studies which he has analysed, this has not occurred, and that the measures used are specific to the study being undertaken.

The Effectiveness Measures Used in this Study

Of the two main models of effectiveness considered in this chapter, the systems resource approach, in an adapted form, has been selected as the more appropriate **for the study of the office service**. The service provided by an office cannot be considered in 'goalistic'

terms, since it is essentially concerned with assisting other organisational sub-units and the organisation as a whole with the furtherance of their goals. The goals of a firm's information service are an aggregate of the goals of other sections, which, in practical terms, are constantly changing, and which may overlap and conflict with each other.

A systems resource model of effectiveness can be applied to the effectiveness of office operations, by viewing information as a scarce and valued resource, which is the focus of competition between sections of the organisation. This approach will reflect the 'bargaining position' of the office, in relation to various other competing interests within the organisation. The increasing reliance on the resource of information means that concepts of effectiveness, which formerly could be applied to information services, are no longer appropriate, due to the results of developments in information technology. Advances in the technology of information manipulation have been viewed as more revolutionary than any previous technological impact⁽²²⁾. The effect on offices of the computer and the microprocessor could lead to changes in the use of information so dramatic, as to alter the sources and use of decisions. One of the most significant aspects of these

changes is that the new information technology increases the dependence of the organisation on particular individuals, and on particular groups, and requires more personal commitment and responsibility at work from these parties.

The key element of the systems resource model of the effectiveness of the office service is 'information as a resource'. Yuchtman and Seashore define resources as:-

"..... generalised means or facilities, that are potentially controllable by social organisations, and that are potentially usable - however indirectly - in relationships between the organisation and its environment".⁽²³⁾

The resource of information is one of the centres of competition in organisations, and for this reason the various sections of the organisation can be said to 'bargain' for a greater share of this resource.

In addition, the office work force is an integral part of the organisation, and an effective office competes for a relatively large share of each member's personal commitment in the interests of the organisation, and in this way acquires additional resources from the organisational environment. The test of effectiveness, which this research proposes, is a measure of the 'Bargaining power' of each office, and it will be

evaluated in terms of three components

1. Adaptability

This is defined as the ability to change an individual's work role, in order to enable the office to cope with changing needs e.g. unpredictable fluctuations in work loads, the requirements of departments that are temporarily short of staff.

2. Appropriateness

This is the extent to which the information service provided by the office is perceived, by other sections of the organisation, as influencing the relative bargaining power of the organisation vis-a-vis the external environment.

3. Resource Bargaining Power

The ability of the office to compete successfully for a relatively large share of each employee's personality, in organisationally relevant ways.

These three components of effectiveness are proposed because they each measure a different facet of the ability of the office to bargain for resources.

Effectiveness will increase, as more and more employees are capable of coping with various special features of administrative work e.g. peaks and troughs of work flow, relationships with the users of the office service.

The more effective the office, the more the organisation as a whole will be able to compete with external forces, since more information about the organisational environment will be available. In addition, a high level of effectiveness will be evidenced, if those who work in the office are committed to providing the best possible service to the organisation as a whole.

Each of the three components of effectiveness was measured by asking both executives and employees, in each office included in the survey, to rate their office by responding to a set of questions. In the executive questionnaire, each executive was asked to indicate the extent of the importance of certain aspects of the organisation, considered, for the purposes of this research, to be indicators of productivity. The measurement scheme was similar to that of Aiken and Hage⁽²⁴⁾ adopted in the previous chapter, and the index was obtained by averaging the scores for responses to different questions. (Appendix 3 contains a copy of the Executive questionnaire). The respondents were asked to evaluate the office on each component as follows:-

Adaptability

Executives were asked to indicate the importance to productivity of (a) co-operation between departments and (b) flexibility in the use of staff.

Appropriateness

This component was measured by asking about the importance to productivity of (a) management's awareness of the significance of office work, and (b) the adequacy of basic education for office workers.

Resource Bargaining Power

In this case executives were asked to state the importance to productivity of interest by staff in their work, and of increased co-operation between individual staff members.

The employee questionnaire also followed the methodology of Aiken and Hage, and the questioning sequence was similar to that of the Employee Evaluation Index of efficiency outlined in the previous chapter. i.e. employees were asked to indicate various assessments of statements or questions, which sought information about the various components of effectiveness. (A copy of the questionnaire is shown in Appendix 2).

The numbers of the questions which relate to each component were as follows:-

Adaptability - Questions 4, 19, 20 and 22

Appropriateness - Questions 6, 11, 16 and 17.

Resource Bargaining Power - Questions 5, 7, 10 and 21.

By averaging the scores from each office, it was deduced that highly effective offices would reflect this feature by the aggregated responses of the employees, and that, similarly, offices which had low effectiveness would indicate this by low average scores.

Conclusions

The stage in the research has now been reached where the hypothetical model has been developed, and the main variables to be measured have been described, together with their respective schemes of measurement. The two dependent variables to be investigated are efficiency and effectiveness. Since these two are independent of each other, it is possible for an office to be effective without being efficient, and efficient without being effective.

The effectiveness of an office is the assessment of its activities by various groups or participants, and since there will be conflicting standards, it is proposed to make this evaluation by referring to two separate groups of organisational members. Effectiveness for one group

(e.g. employees) may not be effectiveness for another group (e.g. executives).

The effectiveness of the service provided by the office is an external judgement of what the office is doing, whilst the efficiency of the service is an internal evaluation of the resources consumed in carrying out the activity.

This chapter has proposed three separate measures for rating the effectiveness of an office. Each one is aimed at assessing the extent to which the effective office competes for resources. An aggregate of these measures indicates the 'bargaining power' of the office, as a sub-unit of the organisation, and with regard to its members of staff. These measures have been proposed because they reflect the special characteristics of the organisational information process. They take into account the particular features which distinguish the work of the information service from the work of manufacturing a physical product. The next chapter will present an account of the design of the research, and a description of the procedures which were adopted to collect the data.

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CHAPTER EIGHT

THE RESEARCH DESIGN

Introduction

This chapter describes the research procedures which were adopted in the study. Data were collected from a sample of offices in two industrial groups, engineering and insurance. The rationale of this approach rests on the contention that management practices related to productivity in offices will vary substantially between an exclusively white collar industry and an industry where productivity techniques have been used previously in a shop floor setting. The chapter considers initially the size and type of the sample before going on to the design of the two questionnaires which were issued. The evidence from two complementary field studies was collected in order to compare the correlates of productivity as perceived by employees and by senior executives of the organisations which participated. Finally, the chapter describes the statistical procedures which were used to analyse the results of the research.

Method of Research

Data for this study were collected by means of a postal questionnaire survey supplemented by personal and

telephone interviews with the company executives. In some cases, interviews with all of the executives were not possible and in such instances, executives agreed to complete questionnaires for subsequent postal submission. A total of 57 completed executive questionnaire forms was obtained from 43 personal interviews and the receipt of 14 forms by post. Completed employee questionnaire forms were received from 251 respondents and this size of sample was considered to be adequate to the requirements of this study.⁽¹⁾

The Sample.

The sample of firms in the survey was confined to offices in two groups of industries i.e. insurance and engineering. This grouping, it was judged, would provide the greatest opportunity of isolating the main variables since it was considered that productivity criteria in offices in the engineering industry would be substantially different from productivity in the offices of insurance companies due to the fact that in a manufacturing concern, productivity approaches would have a bias towards a scientific management emphasis whereas in a white collar industry, productivity techniques would more likely have been developed to take into account the special characteristics of office work. Because of limited resources, it was decided to confine the firms in the sample to the industrial

belt of central Scotland, since it is in this area that the bulk of Scottish industrial and commercial activity is concentrated. Using the Scottish Council (Development and Industry) Register of Companies, a list of 30 engineering firms was randomly selected. No firm with less than 100 employees was chosen since it was considered that offices in firms below this size would be unlikely to be large enough to be seen as a productive unit.

Similarly, with the help of the British Insurance Register, a list of 30 insurance companies with office addresses in the Central Scotland belt was prepared in order to balance the engineering sample. A preliminary approach was made by telephone to find out the name of the individual to whom the initial enquiry should be addressed, and when this was established, an introductory letter seeking the co-operation of the organisation was sent out. (Appendix 1 contains a copy of the introductory letter).

Of the 60 firms who were selected randomly from the two directories, 32 replied that they would be willing to co-operate in the study and, after further telephone discussions, arrangements were made to meet certain executives and to prepare an agreed number of employee questionnaires for distribution.

After contacting several insurance companies, it became apparent that many of the firms in the sample were small

branch offices with a very small number of employees (from 10 to 15) and it was accordingly decided that the initial sample would have to be expanded to include some of the larger 'life' offices which employed a greater number of employees in routine clerical work. The extended sample of insurance companies included a satisfactory number of suitable respondents and the final total of firms participating was 11 from Insurance and 7 from the Engineering Industry.

A disappointing feature of the eventual response rate was the number of late decisions by some firms not to participate due to the unwillingness of trade union officials to co-operate. In the case of 4 engineering firms, after it was agreed to issue questionnaires to clerical employees, this agreement was withdrawn because of objections from the Trade Union representatives in the organisation. Two insurance companies also withdrew their offer to complete sets of questionnaires after consultation and subsequent lack of agreement by Trade Unions.

The Population to be Studied

Data from the participating organisations were sought from two groups of respondents: (a) clerical employees whose work was of a routine or repetitive nature, and (b) executives whose duties were partly or wholly related to

the ways in which the office rendered a service to the organisation. These two groups were selected to encompass the efficiency and effectiveness dimensions of service unit productivity referred to in Chapter 5 of this study. It was judged that the executive respondents would be more likely to frame their replies in terms of the effectiveness component whilst the replies of the employees would be more likely to focus on the efficiency aspects of productivity. Thus it was anticipated that the executives would include in their assessment aspects of administrative productivity which were features of the linkage between the service provided and the inputs, whereas the employees would be oriented more towards evaluations of the manner and means by which resources are combined into immediate task performance.

After a preliminary meeting, each participating firm was asked to specify the number of office employees whose tasks were of a repetitive nature and who could be approached and invited to complete a questionnaire form. In addition, the names of the executives who had a substantial measure of responsibility for the work of the office were sought and their co-operation was requested. In the majority of cases, the questionnaires were taken to the firms and an opportunity was sought to explain the purpose of the enquiry to the participating firms' employees. Where this

was not possible, the questionnaires were sent and the object of the study was explained to a senior executive who was to administer the issuing of the forms. The number of completed forms which were finally returned was 251 employee and 57 executive.

The Format of the Questionnaire

Individuals were asked to respond to a number of questions in a printed questionnaire. Although it was not apparent to the respondents, certain questions were set for subsequent grouping together for the measurement of the productivity factors. Thus the responses to certain questions were taken together to form indices of efficiency and effectiveness. For example, in the employee questionnaire, the index of Adaptability (one of the components of Effectiveness) was achieved by averaging the scores for the following four statements or questions.

1. How familiar are the people who work in your department with the work of other departments?
2. How common is it for people from other departments to help out during busy periods?
3. With what frequency are ideas and information exchanged with other departments?
4. How frequently are you asked to help out in other departments?

Each employee completing the form was asked to state his/

her measure of agreement on the extent/frequency/ importance of the statement or question by means of a five point scale from 'very high' through 'average' to 'very low'. Average scores were taken from these responses and it was concluded that a high index of Adaptability would be reflected in a high average score and that a low average score would indicate a low level of Adaptability. Thus a characteristic of the organisation is based on the aggregate of scores provided by individual members. The employee questionnaire was designed on the conventional Likert five point scale whilst the executive survey elicited information mainly on a three point scale. The reason for this distinction was based on the view that the executives would be likely to have a broader view of the organisation as a whole, and therefore would tend to have a clearer definition of the various aspects of productivity. It was felt therefore that the three point scale would adequately reflect the assessment of executives. By contrast, the 5 point scale in the employee questionnaire was chosen to give a more flexible range of response categories, given that it would be less likely that employees would have existing clear cut ideas on some of the aspects of productivity being researched.

Pilot Study

The employee and executive questionnaires were tested in a

pilot study in one of the larger administrative units of a university to discover if there were questions which seemed either ambiguous or unclear. For this small pilot study 20 employee questionnaires were issued to a group of clerks, audio typists and data prep.operators, and 4 executive questionnaires were completed by administrators of the University who had responsibility for the performance of the work of the clerical employees.

After the pilot study, the views of those who participated were sought in order to gain impressions of the clarity of the questions and the appropriateness of the suggested responses. As a result of this, some of the questions were re-worded and others were changed more radically. The pilot study also resulted in several changes in the design of the form since the layout of the original form could have led to the entering of answers in the wrong columns.

In the pilot questionnaire, questions were arranged in groups designed to test a particular component of productivity, e.g., questions 1 - 4 tested efficiency. It was subsequently decided that questions on a particular productivity component should not be sequential, but that questions testing efficiency, for example, should be randomly distributed throughout the questionnaire form.

It was judged that such an arrangement of question order would discourage any tendency on the part of each respondent to adopt an automatic response pattern. In addition, question 10 was inserted as the obverse to question 21 as a means of detecting any inaccuracy in comprehension or attention on the part of each respondent. Such inaccuracy would be highlighted if a respondent, for example, scored highly on both questions 10 and 21. Where such was later found to be the case, the completed form would be destroyed. After completion of the modifications, the final version of the questionnaire form was prepared and printed. (Appendix 2 contains the Employee Form and Appendix 3 the Executive Form.)

The Employee Questionnaire

Each questionnaire was constructed to obtain data on the components of productivity as described in detail in chapters 6 and 7 of this study. Thus the aspect of efficiency which was being measured by the Employee Questionnaire was the Employee Perception Index. This would eventually be aggregated with the Executive Evaluation Index elicited from the Executive form to obtain the efficiency score for different groups of offices.

The four questions which were set to assess the employee

perception index of efficiency were as follows:-

1. To what extent are modern working methods encouraged in this firm?
2. Would you say that employees are expected to work efficiently?
3. To what extent are modern office equipment and machines used?
4. How frequently are changes in working methods introduced to improve the standard of work?

These questions were aimed at measuring the firm's commitment to, and use of, such demonstrable features of efficiency as modern work methods and equipment, together with some evidence of willingness to change to more efficient systems.

The main part of the employee questionnaire consisted of a series of questions which were set to measure the second component of productivity - effectiveness. To examine the effectiveness of office services, measures were collected concerning the three indicators of the concept which were defined in chapter 7. This approach is similar to that undertaken by Yuchman and Seashore ⁽²⁾ in making the proposition that the outcome of generalised competition for resources provides a yardstick for assessing the extent to which an organisational unit is effective.

Extending this procedure to the study of offices, the employee questionnaire sought measures on whether the offices were differentially effective on the basis of the three components which were described in chapter 7, i.e., Adaptability, Appropriateness and Resource Bargaining Power.

The Senior Executive Questionnaire

This questionnaire (see Appendix 3) was prepared to study the productivity variables as perceived by individuals whose duties and responsibilities were focused more on the results of office work rather than on the work itself. In this questionnaire, efficiency was measured by asking the executive to indicate the importance to productivity of

- (a) more mechanisation, and,
- (b) more modern working methods.

The three variables measuring effectiveness were tested as follows:-

1. Adaptability. (a) Importance of co-operation between departments.
(b) Importance of flexibility of staff use.
2. Appropriateness. (a) Importance of senior management's awareness of the role of the office.
(b) Importance of basic education of office workers.

3. Resource Bargaining (a) Importance of interest by
Power. staff in work.
- (b) Importance of co-operation
between individuals.

The second part of the senior executive questionnaire consisted of asking each executive to place in order of importance to productivity certain characteristics which are associated with the performance of office work. Each characteristic was included as a measure of each of the variables which the model was testing, i.e.,

- (a) Efficiency. New machines and more modern work methods.
- (b) Adaptability. Co-operation by office staff and interest in their work.
- (c) Appropriateness. Consideration by senior management of the importance of office work.
- (d) Resource Bargaining Flexibility to transfer staff
Power. to other departments when
necessary.

The last part of the senior executive questionnaire elicited descriptive data on the level of computer usage plus a rating by the executive of the productivity of the particular office or offices which were his responsibility. One further question on this form was included to test the views of the executives on the significance of certain popular views on productivity problems. For this reason, it was decided to ask each executive how the productivity of his or her office was affected by the administrative

work generated by government legislation. It is also a popular view that literacy levels are declining and that this affects the ability of young entrants to office jobs. Question 4 (b) was included to test this view.

Statistical Procedures

After scoring each respondent's returned questionnaire, the score for each variable was transferred to computer coding sheets, and then cards were punched for the analysis of the data using various sub-programs of the Statistical Package for the Social Sciences, known as S.P.S.S.⁽³⁾

The processing of the data was carried out with the help of the University of Strathclyde's computer centre which has access to the appropriate system of programs. The analysis was carried out by calculating correlation coefficients between the various scores for efficiency and effectiveness and the differing scores for a range of office category variables. Consequently, it was possible to identify the specific office characteristics which could be associated with the various levels of the productivity components.

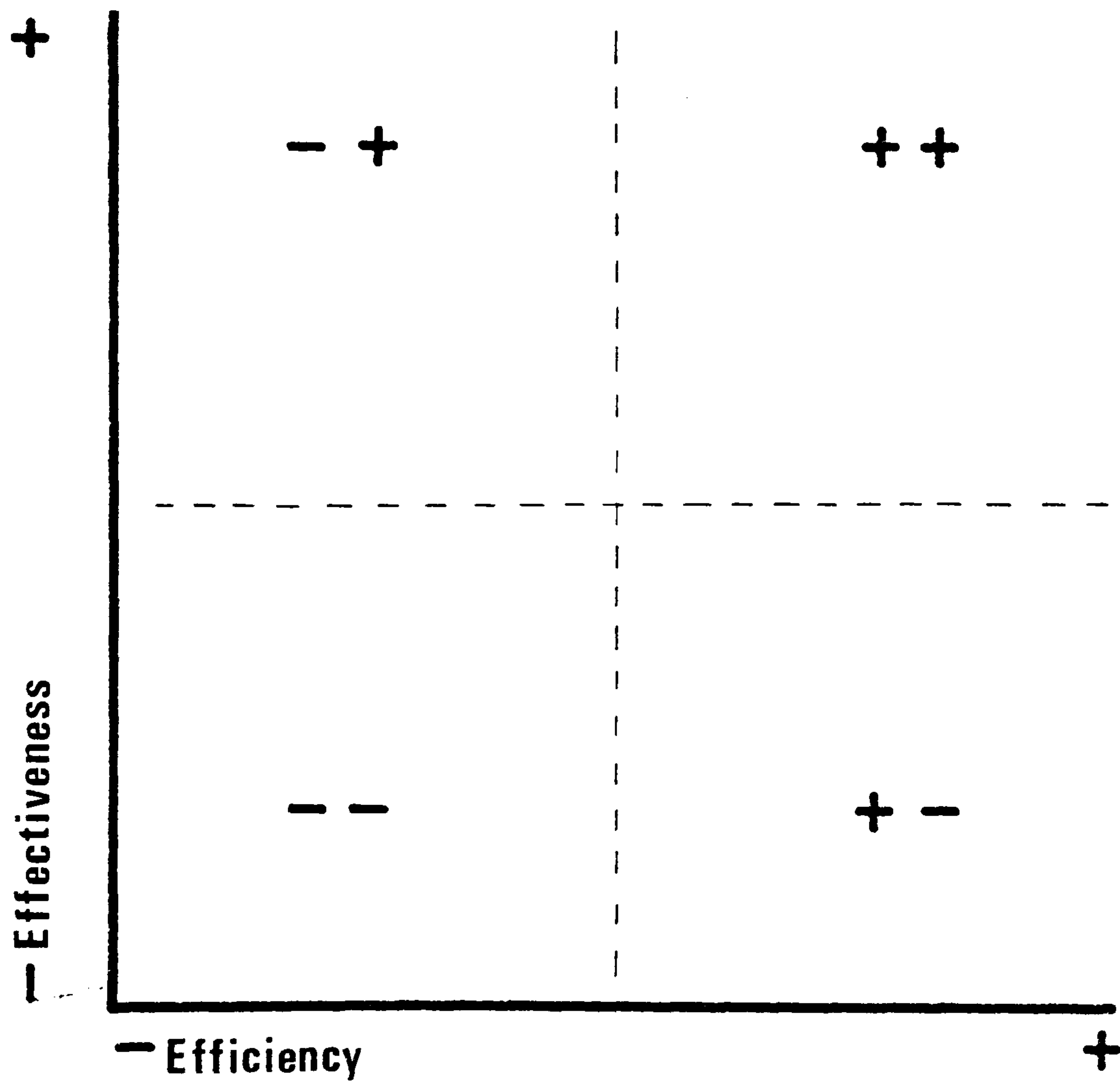
The Theoretical Model

As detailed in chapter 5, it was the writer's premise that productivity in offices was determined by a combination of

the two components, efficiency and effectiveness. The questionnaire responses enabled these two variables to be measured in terms of 'high' and 'low'. Working with these broad groupings, therefore, four possible combinations of high and low efficiency and effectiveness may be grouped. The four combinations are illustrated diagrammatically in Fig. 8.1.

Fig. 8.1.

The Groupings of the Productivity Components.



This research project was designed to find out if there are characteristics of offices which are associated with the differing combinations of high and low efficiency and effectiveness. Having measured the various levels of the productivity components, it was then proposed to group the offices in accordance with the classification shown in Fig. 8.1, and to compare various aspects of their organisation and structure. The enquiry then set out to discover if there were characteristics peculiar to offices with high levels of the productivity factors, characteristics which were not observable in offices with lower levels. In so doing, comparisons could be drawn between offices which were both highly efficient and effective and those which were characterised by lower levels of either or both of the two productivity components.

It was hoped that additional knowledge about the conditions and organisational variables which were found to co-exist with variations in efficiency and effectiveness would be of value in furthering existing knowledge about the nature of the productivity process in offices. Moreover, in discovering the organisational and behavioural influences on low levels of the productivity components in offices, it was anticipated that such findings would be of value to management practitioners who were

anxious to improve the performance of the administrative component in their organisation.

Conclusions

Summary of the measures of office productivity:-

The measures of productivity divided into categories are

1. EFFICIENCY (a) Employee Perception Index
 (b) Executive Evaluation Index

2. EFFECTIVENESS (a) Adaptability
 (b) Appropriateness
 (c) Resource Bargaining Power

This chapter has described in detail the methodology of the research procedures which were adopted to test the model of productivity in offices. Because the productivity of office work has been conceptualised as having an efficiency and an effectiveness dimension, it was decided to gather data from both the providers of the information service and the users of that service.

As with many other productivity studies the purpose of measurement was to make comparisons - comparisons of different industries, size of office and size of organisation. The function of these comparisons was to direct attention to the need for action. On occasions the action which was required might be further measurement and some productivity studies are limited to this function.

The comparisons were intended to stimulate and evaluate management activity but their value would be enhanced if they were interpreted with care and with discretion. The next chapter will provide the comparisons and aggregated results of this study, interpreted it is hoped with the care and discretion which will form a basis for managerial action.

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CHAPTER NINE

THE RESULTS OF THE RESEARCH

Introduction

The model outlined in the previous chapter depicts productivity as a two dimensional concept which is measurable in terms of its constituent parts, - efficiency and effectiveness; efficiency being the optimisation of the means by which resources are combined into final outputs; and effectiveness being the extent to which the office fulfils the information requirements of the organisation. The research design has specified the operational measures of both efficiency and effectiveness which were obtained for the various offices in the survey, and the results which follow show how the various characteristics of the offices are reflected in the different combinations of the levels of the two productivity components. It is at this stage worthwhile to re-state that the main purpose of this study of productivity in offices was to discover the type of office which would be associated with differing combinations of high and low efficiency and effectiveness. The analysis therefore examines the variations in the levels of the productivity components and relates these to several office variables, in an attempt to establish significant relationships.

The chapter begins by describing the size of the sample of office employees who completed survey questionnaires and the number of executives who were interviewed. The number of offices in each industry group and the size criteria for the work groups are specified, in order to show how the sample was distributed. The variables which comprise the two productivity components are analysed in correlation matrix, in order to determine if they are related in a way which would allow them to be combined in a composite index of productivity. This analysis gives good grounds for proceeding to the next stage of the chapter which then relates differing levels of the productivity components to the various office characteristics. Each combination of high and low efficiency and effectiveness is analysed separately, and the relationships which emerge are shown by means of correlation coefficients.

The latter part of the chapter examines in more detail the main findings of the previous section, and tests further some of the conclusions by examining the extent to which other factors might explain the relationships which were identified earlier. Finally the offices which were classified by differing combinations of high and low levels of the productivity components are grouped, and their shared characteristics are described. Four separate ~~productivity orientations~~ were isolated each of which had

its own set of norms about the way that work is organised and tasks carried out in accordance with the importance attached to the achievement of efficiency and effectiveness.

Characteristics of Sample

Data was collected from 251 employees in 27 offices within 18 firms in the engineering and insurance industries. Executives from the same 27 offices were interviewed and asked to complete a separate questionnaire, and 57 of these were returned for analysis. (Appendices 2 & 3 contain a copy of each questionnaire). The classification of organisations by industry group was based on the Scottish Council (Development and Industry) Register of Industry Groups (see Chapter 8).

Although the findings of the literature on group size and productivity are mixed, there is evidence to support the view that small groups are more productive.⁽¹⁾ One study⁽²⁾ found that group size was positively related to performance for tasks that were structured and, according to Cummins and King,⁽³⁾ small groups are more productive because co-ordination is easier. For the purposes of this research, it was decided that a work group size of five or fewer employees would be regarded as 'small', and all groups with six or more employees would be 'large'. Size criteria identical to these were found by Hare⁽⁴⁾ to be

appropriate to the analysis of several studies comparing performance levels in small and large groups. Tables 9.1 and 9.2 profile the employee sample by size of work groups and by industry group, and Tables 9.3 and 9.4 show the distribution of the executive sample by the same categories.

Table 9.1

Employee sample by Size of Workgroup

	Large	Small	Total
No. of Groups	16	11	27
No. of Respondents	164	87	251

Table 9.2

Employee sample by Industry Sector

	Insurance	Engineering	Total
No. of Firms	11	7	18
No. of Groups	17	10	27
No. of Respondents	177	74	251

Table 9.3

Executive sample by Size of Workgroup

	Large	Small	Total
No. of Groups	16	11	27
No. of Respondents	34	23	57

Table 9.4

Executive sample by Industry Sector

	Insurance	Engineering	Total
No. of Firms	11	7	18
No. of Groups	17	10	27
No. of Respondents	44	13	57

Whilst the classification system for industry group was identical for employees and executives, it was less straightforward when the allocation of workgroup size to executives was being considered. Some executives had responsibility for different offices each of which might contain a number of different sized work groups. In such instances, the tendency was for the executive to consider himself to have responsibility for one large group of employees. For the purposes of this study, it was necessary to ascertain the composition of the various groups for which one executive was responsible, and, when

necessary, reclassify them according to the size criteria already specified, i.e. 'small' comprising five or fewer employees and 'large' comprising six or more employees.

Computation of Effectiveness and Efficiency Measures

The responses to the questionnaire items were labelled V1-V28 for the employees, and M1-M17 for the executives, each V or M number corresponding to the question number on the questionnaire form. Examples of the questions which were set to measure each factor of productivity were given in Chapters 6 and 7, which also outlined the operational measures of the independent variables efficiency and effectiveness. Following the procedure recommended by Oppenheim⁽⁵⁾, it was decided to start off with the evaluative questions and to place the factual questions relating to 'age', 'marital status', etc., at the end of the form. In the pilot survey, carried out prior to the main survey, (see Chapter 8) all the questions pertaining to specific productivity components were grouped together. However, it was decided, for the main survey, to re-group the questions into a random order in order to obviate the possibility of a repetitive response pattern which might result from clusters of questions on the same topic. Questions 1, 2, and 18 on the employee form, and questions 1 and 2 on the executive form were set to measure efficiency and responses to these

items constituted the data from which the efficiency scores were computed. Similarly, the three components of effectiveness (Adaptability, Appropriateness and Resource Bargaining Power) were computed by aggregating the responses to the questionnaire items which were set to measure each of these in the employee and executive survey. The allocation of response items to the various productivity factors is summarised in Table 9.5 :-

Table 9.5
Response Items and Productivity Factors

	Efficiency	Effectiveness		
		Adapt.	Approp.	Resbar.
Employee Survey	V1	V4	V6	V5
	V2	V19	V11	V7
	V3	V20	V16	V10
	V18	V22	V17	V21
Executive Survey	M1	M3	M7	M5
	M2	M4	M8	M6

The analysis of office productivity which was undertaken in Chapter 5 advocated that it could be identified and measured in terms of four components, i.e., Efficiency and the three factors comprising Effectiveness (Adaptability, Appropriateness and Resource Bargaining

Power). These represent different 'systems' by which a clerical worker can influence the productivity of an office. Each productivity factor can be measured using data representing a variety of ways in which an individual can contribute to the productivity process. Employees, for example, can increase efficiency by making greater use of new machines and equipment. Similarly effectiveness can be measured by assessing the extent to which the employees are prepared to co-operate (Adaptability), or provide a higher standard of service (Appropriateness), or are willing to take an interest in the results of their tasks (Resource Bargaining Power).

The questionnaire was designed to assemble several measures for each of the four components of productivity in offices. To measure efficiency, questions were asked about the extent to which modern methods and equipment were used, and the frequency with which changes were introduced to improve work standards. Adaptability was tested by asking about the frequency of help given to and provided by other departments in the firm. A measure of Appropriateness was derived by establishing the employees' rating on such features as importance of office work to the firm and quality of service. The third effectiveness component, Resource Bargaining Power, was measured by asking about the extent to which the work was interesting

and if it was common for employees to be encouraged to do more than one job. Finally, the respondents were asked about certain demographic factors such as age grouping, marital status and length of service in the firm so that the patterns productivity could be related to variables of this type.

It is important to ascertain if the operational measures of each of the components are related in a way which permits their being grouped together in a composite index of efficiency and effectiveness. In other words, if an employee gave a certain response to one of the questions within a given productivity factor, it would be encouraging to know whether or not this type of response was given to other questions which were set to measure that particular factor. High correlations between the questions comprising each productivity factor will reinforce the view that each represents a related but separately identifiable measure. An approach identical to this was undertaken by Verba and Nie ⁽⁶⁾ in their study of political participation.

The coefficients of correlation among the various indicators of efficiency and those pertaining to the three factors of effectiveness are shown in Appendix 4 . The matrix in Appendix 4 illustrates that, although all the

productivity items are inter-correlated, the correlations between items grouped to form a single component are higher than those across different response items, and therefore there are grounds for differentiating these as components of productivity.

Considering the matrix in its entirety, it can be seen that the coefficients range from .01 to .61. The mean of all coefficients is .23, all the coefficients are positive and all those grouped together to form a productivity component are statistically significant. ($p < .05$, $r > .19$). A high level of participation on any one of the productivity items increases the probabilities of a high contribution in each of the other items within a particular component. The average correlation within the boxes is .33 and the average for those outside the boxes is .20. The box containing efficiency has a mean correlation of .39 which is almost twice the average of the correlations of the variables outside the boxes and is the highest of the four productivity components. Appropriateness has an average correlation of .33 which, like efficiency, is substantially higher than the average outside the boxes. The pattern in the remaining two factors, Adaptability and resource Bargaining Power is similar to the first two but in this case the mean correlations are .31 and .30 respectively and not as far above the average outside the boxes. The data suggest therefore that although all

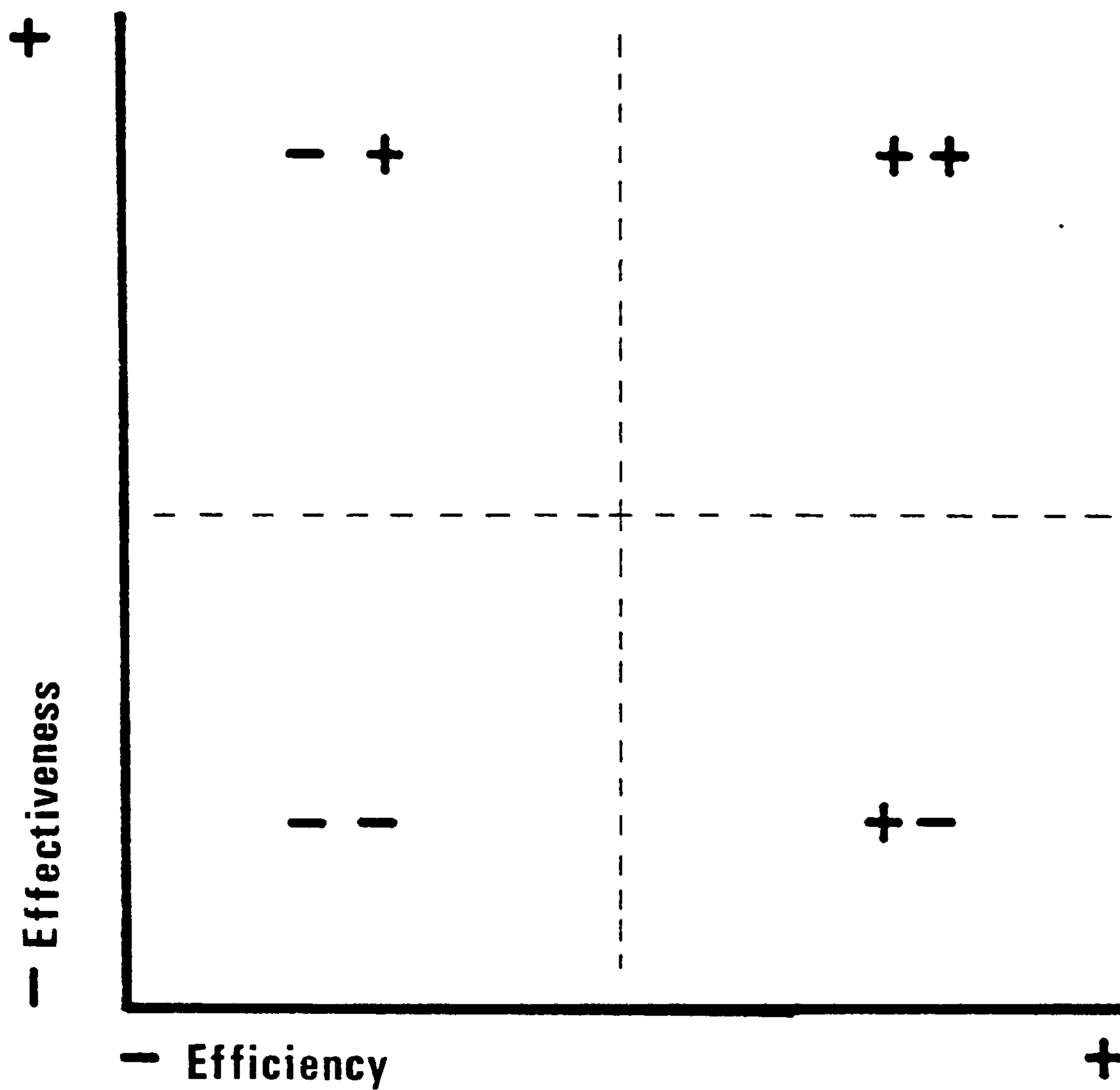
the productivity items are inter-correlated, the correlations between items within the same component are higher than those across different response items.

Method of Analysis

The first stage of the analysis was to calculate correlation coefficients between the various scores for efficiency and effectiveness, and the differing scores for a range of other office type variables. It then became possible to identify the specific office characteristics which could be associated with the various levels of the productivity components. The second stage of the analysis classified the scores for the varying levels of efficiency and effectiveness into a matrix, (see Fig. 9.1) and permitted an examination of the characteristics of the offices which featured differing combinations of high and low efficiency and effectiveness. Finally, a series of tests were conducted to ascertain the extent to which the main relationships which had been established might be explained by the influence of other factors.

Fig. 9.1.

The Groupings of the Productivity Components.



The variables which were to be correlated with the different combinations of the productivity factors were classified as follows:-

1. Structural Variables

- (a) Size of Work Group
- (b) Size of Firm
- (c) Industry Sector of Firm

2. Technological Variables

- (a) Extent of Computerisation
- (b) Use of Modern Equipment

3. Demographic Variables

- (a) Age of Employee
- (b) Sex of Employee
- (c) Length of Service
- (d) Job Title
- (e) Marital Status
- (f) Part or Full Time Worker

4. Performance Variables

- (a) Manager's Productivity Rating
- (b) Employee's Productivity Rating
- (c) Survey Rating

5. Management Variables

- (a) Encouragement of Teamwork
- (b) Extent of Training
- (c) Care in Making New Appointments

6. Employee Variables

- (a) Familiarity with other Departments
- (b) Coping in a Crisis
- (c) Co-operation with others

Structural Variables

Table 9.6 shows the Pearson Product Moment Correlation Co-efficients between the scores for efficiency and effectiveness and the first group of office variables, the structural group.

TABLE 9.6

Pearson Product Moment Correlation Coefficients
between Productivity Components and Structural
Variables

Structural Variable	Efficiency	Effectiveness
Large work groups	.18*	-.07
Large Firms	.09	.04
Insurance sector Offices	.34 ⁺	.07

* $p < .05$

+ $p < .01$

The analysis of the structural group of variables shows that two of the structural factors were significantly related to higher levels of efficiency, and that no significant relationship emerged between these factors and the scores for effectiveness.

High levels of efficiency were found in large work groups and in offices in the insurance sector. It is interesting to note that no significant coefficient was linked to firm size, suggesting that it is the size of the office work group, irrespective of the size of firm in which this group operates which is the major determinant of efficiency.

The anticipated relationship between small workgroups and high effectiveness did not emerge as might have been expected from the literature on work group size and performance.⁽⁷⁾ One possible explanation for this could be the proposition put forward by Price⁽⁸⁾ when he concluded that certain small groups have high effectiveness, not because they are small, but because they tend to be 'people oriented', as distinct from large groups which have low effectiveness because they are 'goal oriented'.

Thus the more generally assumed relationship between high performance levels and small groups could be explained by factors other than group size.

The most interesting result to emerge from the efficiency scores is the very significant coefficient (.34) showing that the high levels of efficiency were associated with the offices in the insurance sector. There is already evidence to show that productivity improvement schemes in offices are more extensively used by organisations which are largely 'white collar' in their occupational structure.⁽⁹⁾ This earlier adoption by white collar firms of more highly developed forms of work measurement in offices and their greater use of O & M techniques would therefore be expected to be reflected in a higher score on the efficiency scale.

The significant relationships between the productivity components and the structural variables may be summarised as follows:-

1. Efficiency varied directly with work group size.
2. Higher levels of efficiency were found in the insurance sector offices.
3. Effectiveness was not associated with any of the structural variables.

Technology Variables

The second group of variables to be analysed with the productivity components is the technology group, and the coefficients of correlation are shown in Table 9.7.

TABLE 9.7

Pearson Product Moment Correlation Coefficients
between Productivity Components and Technological
Variables.

<u>Technological Variables</u>	<u>Efficiency</u>	<u>Effectiveness</u>
Extent of computerisation	.17*	-.17*
Extent of use of Modern Equipment	.18*	.25 ⁺

* $p < .05$

+ $p < .01$

Table 9.7 shows that there were significant positive associations between the high usage of modern equipment and high levels of both efficiency and effectiveness, but surprisingly, the degree of computer usage is positively associated with efficiency only, and negatively associated with effectiveness.

The difference in the degree of association between high levels of efficiency and effectiveness and the degree of computerisation might be explained if the distinction is made between 'macro' productivity, (the productivity of the organisation as a whole), and 'micro' productivity (the performance of specific departments or functions).⁽¹⁰⁾

The impact of computers on organisations has resulted in much routine clerical work being removed from the department traditionally known as 'the office' and transferred to a centralised data processing department.⁽¹¹⁾

Thus the nature of the tasks which remain in the office are those which are less suitable for computerisation.

According to Whistler⁽¹²⁾ computer systems make their major contribution by increasing the organisation's capacity for monitoring and controlling information, and this is likely to be perceived in terms of enhanced overall performance, i.e. macro-productivity.

Thus computerisation changes the nature of the tasks

which remain in the traditional 'office', and the question arises of forming new and appropriate productivity criteria for the non-computerised part of the information service which remains (micro-productivity).

The absence of a relationship between high effectiveness (the fulfilment of the information requirements of the organisation) and extensive computerisation may be explained by the growing evidence that many computer systems are reducing the discretion and autonomy exercised by clerical employees,⁽¹³⁾ particularly at lower levels in the organisational hierarchy. One report comments that in one case certain areas of decision making, which were previously the responsibility of the individual, were taken over and programmed into the computer.⁽¹⁴⁾

The result of this is likely to be an awareness by clerical employees that many tasks are being reorganised to make them more compatible with the computer schedules. As a result, the efficiency aspect of computerisation is recognised. On the other hand, computerised systems may require the tasks being carried out to be so routine and structured, that the employee feels that the effectiveness of the work group is impaired. Certain skills and knowledge may no longer be needed and the reduction in personal contact could bring about a diminution in a number of the characteristics which are indicators of effectiveness.

The concept of effectiveness which was adopted for this study interpreted effectiveness as consisting of three factors, Adaptability, Appropriateness, and Resource Bargaining Power, all of which provide for flexibility, judgement and discretion in the carrying out of clerical tasks. One of the most noteworthy results of the use of computer technology in offices is the extent to which work routines have become standardised and programmed, thus removing some of the traditional features of office work such as opportunities for showing judgement and discretion. (15)

The significant relationships which have been established between the technology variables and the productivity components may be summarised as follows:-

1. Efficiency was positively associated with the extent of computerisation and with the extent of use of modern equipment.
2. Effectiveness was positively associated with the use of modern equipment and negatively associated with the extent of computerisation.

Demographic Variables

The relationships between the productivity components and the various demographic variables are shown in Table 9.8.

TABLE 9.8

Pearson Product Moment Correlation Coefficients
between Productivity Components and Demographic
Variables.

Demographic Variables	Efficiency	Effectiveness
Age	-.12	.12
Sex	-.09	.08
Length of Service	-.01	.03
Job Title	-.19*	.00
Marital Status	.05	.03
Part time/full time	-.18*	.15

* $p < .05$

Table 9.8 shows that with only two exceptions, there was no significant association between the scores for the productivity components and any of the demographic factors. In the case of efficiency, only Job Title (higher job grade) and Full Time workers were shown to be significantly associated with high levels of efficiency in the offices.

The respondents to the employee questionnaire were divided into 3 groups to indicate different grades of job level. Jobs such as 'copy typist', and 'clerk' were allocated to the lowest grade. The middle grade included such jobs as 'senior typist' and 'senior clerk', whilst

the top grade was used for posts such as 'typing supervisor' and 'insurance officer'. The significant relationship shown between high efficiency and the offices staffed by employees in the higher grades might be explained in terms of the observation that optimum performance of tasks is frequently given as a reason for promotion,⁽¹⁶⁾ and it follows therefore that this propensity to high efficiency will be evidenced in those employees who are in the higher grade jobs.

Of particular interest is the fact that, whilst it is the higher grade jobs which are associated with the higher efficiency scores, this association is not replicated in the case of the effectiveness scores. It may be deduced therefore that in the offices studied for this research project, the higher efficiency offices were more likely to be staffed by full time employees and by those in the more senior job grades. Offices with highly skilled full time staff are more likely to be more efficient and better supervised, particularly where there is a large proportion of activity related to maximum use of resources and skills. A greater proportion of part time staff seems likely to inhibit the volume of production due to lack of continuity, thus leading to a reduction of efficiency in the office.

Table 9.8 also shows that there were no significant relationships between the efficiency and effectiveness scores and the demographic variables age, sex and marital status of the employees. This unimportance of demographic factors in explaining the behaviour of white collar workers was highlighted by Bain⁽¹⁷⁾ who, when analysing the role of demographic factors in patterns of white collar unionisation, concluded that these factors were of little importance, compared with a range of other variables, in explaining the attitudes of white collar workers to many aspects of their work environment. Whilst not discounting completely the influence of demographic variables, Bain commented that they were of negligible importance compared with certain other factors, e.g., structural, governmental, managerial. Hitherto a great deal of the research on demographic variables and work performance has been concerned with specific functions or capacities⁽¹⁸⁾. It is becoming increasingly recognised that these do not operate in isolation, but within complex systems, in which various abilities and functions interact with other individual variables and with social, environmental and organisational factors⁽¹⁹⁾. Thus there seems little reason to expect any substantial variation in work performance in terms of age, sex or marital status. Research dealing directly with individual factors in decision making and white collar abilities⁽²⁰⁾ suggests

that the main emphasis is on cognitive factors.

Job knowledge is an important factor and this, combined with general intelligence, forms what is known as cognitive style, which relates to the ability of a person to seek out and use a considerable volume of information, thus exploring a large number of alternatives.

The relationship between the demographic variables and the productivity factors may be summarised as follows:-

1. Efficiency varied directly with grade of post.
2. Efficiency varied directly with the use of full-time employees.
3. On the whole, demographic factors were of little importance in explaining the different levels of the productivity components.

Performance Variables

In order to compare the way in which different groups or individuals assessed the productivity of a particular office, separate evaluations of productivity were sought from varying sources. Each employee was asked to make a judgement on the productivity of their own office; similarly, each participating executive was asked to rate the offices for which they had responsibility on a productivity scale ranging from 'very high' to 'very low'. During the course of the survey the researcher evaluated subjectively (see Chapter 8 on Research Design) how the

productivity of a particular office: rated on a scale identical to that of the executives, and this score was recorded for each office. The productivity variables and the correlation coefficients with the different performance assessments are shown in Table 9.9.

TABLE 9.9

Pearson Product Moment Correlation Coefficients
between Productivity Components and Performance
Variables

Performance Variables	Efficiency	Effectiveness
Executives' Rating	.86 ⁺	.06
Employees' Rating	.12	.85 ⁺
Survey Rating	.17 [*]	-.05

* $p < .05$

+ $p < .01$

The most interesting feature of Table 9.9 is the difference between the performance assessments made by the executives and the employees of their offices, when matched with the scores on the productivity components. As the table shows, a high performance rating by the executives was very significantly associated with a high efficiency score, and a high rating by the employees was associated with a high score on the effectiveness scale. It may therefore be deduced that productivity in offices is seen in a

different context by the providers and by the users of the organisational information service. This producer/user distinction in the evaluation of a service activity was emphasised by Sasser,⁽²¹⁾ in contrasting the variations in the need for a service by users with the resources available to provide it.

The offices (15 in insurance and 2 in engineering) which were considered by the executives to be highly productive were those which, according to this survey, were highly efficient. By contrast, the way in which the performance ratings were judged by the employees was much more in terms of effectiveness. The offices which were considered by the employees to be very high on the productivity scale were those which were highly effective on the basis of this survey. This quite dramatic difference in the interpretation of the productivity ratings emphasises once more the different perspective which is adopted by the users and the providers of a service in organisations. This difference in perspective between information providers and information users was highlighted by Strassman,⁽²²⁾ when commenting that there was a growing need to balance the information needs of users against that which could be provided by the "information technicians".

A summary of the relationships found between the productivity assessments of the different groups and the productivity components is outlined as follows:-

1. The executives' productivity assessment varied directly with efficiency.
2. The employees' productivity score varied directly with effectiveness.
3. The writer's productivity assessment varied directly with efficiency.

The Management Behaviour Variables

The next group of variables to be analysed and related to the productivity scores is the management behaviour variables. These were derived from the answers to questions which were set to test certain managerial inputs to the productivity of the office.

It was felt that offices which were supervised by executives who stressed the encouragement of teamwork and the importance of training would be characterised as having a management which was aware of the importance of productivity in the office. Similarly, the importance placed on the appointment of new staff would be a useful indication of the degree of management interest in office productivity. The coefficients showing the association between the management behaviour variables and the

productivity scores are shown in Table 9.10.

TABLE 9.10

Pearson Product Moment Coefficients between
Productivity Components and Management
Behaviour Variables

Management Behaviour Variables	Efficiency	Effectiveness
Teamwork	.03	.26 ⁺
Training	.11	.27 ⁺
New Appointments	.11	.28 ⁺

+ $p < .01$

The Table shows that there is a high positive correlation between the three management behaviour variables and effectiveness, whilst no such association is shown between these and efficiency. This distinction in the way in which managerial factors are associated with the productivity process is quite remarkable, particularly when it was earlier observed that managerial perceptions of office productivity were specifically concerned with efficiency. The relationship between management style and productivity has been well established,⁽²³⁾ but an aspect of managerial activity which is less extensively researched is the extent to which performance in service activities is enhanced by a less direct involvement in the

supervisory process such as the encouragement of teamwork or the attention to training. Factors such as these can be regarded as an 'indirect' contribution by management to the productivity of the office and one which is frequently less easily identifiable than other characteristics of management style and practice.

The importance of the contribution of these managerial behaviour factors in influencing the performance of the service provided by the office is of particular interest. Since standards of performance are set primarily by management, the behavioural characteristics of this management should be geared to motivating the office workforce to act in a manner consistent with the criteria of the effectiveness concept as applied to the individual office.

The importance of this motivation becomes clearer when the objective of a manufacturing activity is compared with that of a service activity. In a manufacturing activity the management objective is frequently to reduce the initiative and the autonomy of employees, and thereby standardise the attributes of the product. By contrast a substantial proportion of the service provided by an office cannot be determined in advance, but must be shaped to suit the ever changing requirements of the organisation. This aspect of service production will correspond more

closely with the requirements set by management in offices where training commensurate with the encouragement of team spirit has been devised and implemented.

It is now well known that white collar workers will be more productive under a management style characterised as 'democratic'⁽²⁴⁾. Hitherto it was not appreciated to what extent managerial reinforcers such as those analysed in Table 9.10 can contribute to productivity in the office context, and the implications of the results shown in the Table represent an advance in the existing knowledge about the ways in which management behaviour variables can influence the productivity of the office. The close association which was found between effectiveness and the three indicators of managerial behaviour can be regarded as a strong argument for the taking of more positive measures by management to improve the performance of the office in the organisation. By contrast, the literature on the role of management in the office⁽²⁵⁾ lays stress on the achievement of performance standards by relying on the traditional O & M techniques supported by the increasing mechanisation of office procedures - all likely to produce higher efficiency. The earlier findings of this study on the close association between efficiency and the use of modern equipment and degree of computerisation are clear indicators that managerial

policies in this area can achieve results in terms of efficiency but not of effectiveness.

The coefficients linking the management behaviour variables to the effectiveness scores for the offices in this study are similar to the insights of Steiner,⁽²⁶⁾ who argued that the efficiency of individual operations may be achieved at the expense of the effectiveness of the office as a whole. Thus excessive specialisation and mechanisation may be followed by potentially counter-productive relationships at various levels of the organisation. In other words, the efficiency benefits of modern equipment and developing information technology may, if not reinforced by appropriate management inputs (team spirit, training, etc.) be bought in at the expense of costly lack of effectiveness of the office as a whole.

The relationships between the productivity scores and the management behaviour variables may be summarised as follows:-

1. Encouragement of teamwork was positively associated with effectiveness.
2. Attention to training was positively associated with effectiveness.
3. Care in making new appointments was positively associated with effectiveness.
4. None of the management behaviour variables was shown to be associated with efficiency.

Employee Behaviour Variables

The last group of variables to be analysed in relation to the scores for the productivity components were those concerned with aspects of employee behaviour considered to be associated with productivity in the office. Since it was conjectured that employees who were familiar with the work of other departments, who felt able to cope in a crisis and who would be co-operative in their attitude to work would make a considerable contribution to office productivity, their relative association with each component of productivity was tested with the results shown in Table 9.11.

Table 9.11 shows the correlation coefficients between the productivity scores and the Employee Behaviour variables.

Table 9.11

Pearson Product Moment Correlation Coefficients
Between Productivity Components and the Employee
Behaviour Variables.

Employee Behaviour Variables	Efficiency	Effectiveness
Familiarity with Other Departments	.11	.22 ⁺
Coping in a Crisis	-.02	.39 ⁺
Co-operation	.07	.31 ⁺

+ $p < .01$

The Table shows that there is a considerable difference in the correlations between the employee behaviour variables and the scores for efficiency and effectiveness. None of the employee behaviour variables were significantly associated with efficiency, whilst by contrast all three were very significantly positively associated with the scores for effectiveness. Thus the offices which were highly effective were characterised by having a work force which was familiar with other departments, was capable of dealing with crises, and showed a high degree of co-operation in its attitude to working practices. According to Stanworth⁽²⁷⁾

"a pre-condition of organisational effectiveness is the existence of reasonably predictable behaviour patterns."

The three employee behaviour variables in Table 9.11 may be regarded as indicators of 'predictable behaviour patterns' in terms of office productivity which, like the management variables in Table 9.10, reinforce the levels of effectiveness in offices. The high significant coefficients between effectiveness and these variables suggest moreover that these employee reinforcers are more closely associated with effectiveness than some of the other groups of variables such as the structural, technological or demographic which form part of this study.

The close relationships of both the management behaviour

and the employee behaviour groups of variables with effectiveness in the offices studied for this research project is consistent with the findings of Cohen and Collins' study (28) of one of the service activities of the U.S. Department of Health, Education and Welfare. Distinguishing between "internal organisational characteristics" (teamwork, co-operation) and "environmental characteristics" (structure hierarchy), they emphasise that effectiveness is much more closely related to the former since

"the more effective organisation also exhibits adaptability and is able to anticipate and cope with stressful problems."

Various productivity improvement programmes are based on the "industrialising" of service activities as suggested by Leavitt (29) or by separating the users of the service from the technical core as discussed by Chase. (30) These approaches tend to emphasis an operations management view of organisations and their practices. The evidence of the association between the management and the employee behavioural factors and the productivity scores suggests that there is now a need to adopt a perspective which is based on a user/ supplier interaction of the 'Product' of an office i.e. the information service.

A summary of the relationships between the productivity scores and the employee behavioural variables may be

outlined as follows:-

1. All the employee behaviour variables were positively associated with effectiveness.
2. There were no significant relationships between any of the employee behaviour variables and efficiency.

Further Analysis of Results

The purpose of this research was to discover the characteristics of offices which could be identified in terms of different levels of efficiency and effectiveness. Once the offices had been grouped in accordance with the different levels of the productivity factors, each group was analysed in accordance with various categories of variables e.g. extent of computerisation, industry sector. Table 9.12 summarises the main relationships which have emerged from the analysis of the data to this point. The Table was prepared by calculating indices which represented aggregate measures for the responses to individual questions which were set. For example an aggregate management behaviour index was established by calculating the mean score for the three questions which were set to test this variable, and then calculating the coefficient of correlation with each of the productivity components. The Table shows that efficiency is positively associated with sector (insurance), large work group size and

technology, whilst effectiveness is positively associated with management behaviour, employee behaviour and negatively associated with technology.

TABLE 9.12

Pearson Product Moment Correlation Coefficients
between the Productivity Components and the Main
Independent Variables

Independent Variable	Efficiency	Effectiveness
Insurance Sector	.34 ⁺	.07
Large Work Groups	.18 [*]	-.07
Technology	.23 ⁺	-.17 [*]
Management Behaviour	.08	.39 ⁺
Employee Behaviour	.10	.42 ⁺

* $p < .05$

+ $p < .01$

It is possible, however, that the relationships which have been shown are not as simple or as direct as suggested by those in Tables 9.6 to 9.11 in the earlier part of this Chapter. There exists the possibility that the significant association between efficiency and, for example, the insurance sector offices may be spurious because variations in efficiency may result from some other intervening variable, e.g., technology, which may

be the true predictor of the productivity component. It must therefore be ascertained whether or not the variations in efficiency and effectiveness being analysed in this study are in fact as direct as suggested in Table 9.12, or whether the relationships can be explained by factors other than those suggested by the coefficients. For example, to what extent are efficiency and the insurance sector offices associated when the influence of technology is held constant?

A test was run to provide a single measure of association describing the relationship between two variables whilst adjusting for the effects of several additional variables (SPSS sub-program PARTIAL CORR). Table 9.13 illustrates the results of the partial correlation analysis and shows the original coefficients between efficiency and the independent variables industrial sector and size of workgroup. The Table also shows the extent to which these original coefficients are changed when the influence of technology is controlled, by illustrating that, when a control for the influence of technology is introduced, the original relationships are modified. (Sector from .34 to .29, size from .18 to .12).

TABLE 9.13

Partial Correlation Analysis

Efficiency with Industrial Sector and Work
Group Size

Controlling for Technology.

	EFFICIENCY	
	Correlation Coefficient	Controlling for Technology
Insurance Offices	.34	.29
Large work groups	.18	.12

The strength of the association between efficiency and the insurance offices remains statistically significant, whilst the reduction in the efficiency/work group size association reduces this to a non-significant category. These relationships have now been clarified considerably; the association between efficiency and the insurance sector offices remains, whilst the efficiency/work group size association is spurious, since the effect of technology was acting to create the relationship.

A similar test was carried out to discover the extent to which the original coefficients of effectiveness were affected when controls were introduced for the influence of technology. The result of this is shown in Table 9.14.

TABLE 9.14

Partial Correlation Analysis

Effectiveness with Management Behaviour
and Employee Behaviour
Controlling for Technology

	EFFECTIVENESS	
	Correlation Coefficient	Controlling for Technology
Management Behaviour	.39	.27
Employee Behaviour	.42	.40

Table 9.14 shows that when the control for technology is introduced, the strength of the association between effectiveness and the Management Behaviour variable is reduced considerably. A similar control applied to the effectiveness/employee behaviour association shows that there is very little change in the original relationship when the influence of technology is controlled. The results of this test suggest that the influence of technology is exaggerating the strength of the effectiveness/Management behaviour association, and that this relationship is considerably weakened when technology is controlled. This tendency was not repeated when technology was controlled for the effectiveness/employee behaviour association, suggesting that of the two main

variables associated with effectiveness, it is employee behaviour which is stronger and more directly related to effectiveness.

One further test was carried out in order to establish the extent to which the influence of other factors was at work in the formation of the original coefficients. It is clear from the original analysis that effectiveness was strongly associated with both employee and management behaviour. It might therefore be hypothesised that employee behaviour is itself strongly associated with management behaviour and it is important to establish the relationship between each of these and effectiveness when the influence of the other is controlled.

When a control was applied for management behaviour, the effectiveness/employee behaviour association was modified from its original .42 to .21. Controlling for employee behaviour, the effectiveness/management behaviour was also reduced, but to a considerably lesser extent (.39 to .32). Thus the results of this test suggest that although both management behaviour and employee behaviour were strongly associated with effectiveness, employee behaviour tends to operate in close association with management behaviour whilst management behaviour is only very slightly influenced by employee behaviour factors.

The conclusions to be formed therefore emphasise the importance of the influence of managerial factors not only on effectiveness as conceptualised for this study, but also on the way in which employees contribute to overall productivity. The analyses of the data suggest that the key variable in the attainment of higher productivity levels in offices is the contribution which can be made by management. In that management behaviour was found to be only slightly influenced by employee behaviour factors, it may be deduced that the contribution made to effectiveness by employees is achieved to a great extent as a result of the influence of certain management behaviour factors on these employees (and not vice versa). The particular managerial contributions to effectiveness which were analysed for this study were those concerned with the encouragement of teamwork, co-operation and coping with crises. It is not suggested that this is an exhaustive list, but it is clear from the model of productivity earlier described that, in the offices studied for this research, effectiveness was achieved as a result of specific managerial inputs.

The Groupings of the Productivity Factors

This section of the Chapter analyses the way in which the various scores for the productivity components cluster to form different categories of office, each of which is

identifiable by high and low scores on each of the productivity measures. The matrix outlined on page of this Chapter shows the four different combinations of high and low efficiency and effectiveness. The results which have been described to date have outlined the ways in which each of these productivity components are related to the office variables. These may be summarised as follows:-

1. Efficiency was associated with:-

- (a) Insurance sector offices.
- (b) Extensive use of modern equipment.
- (c) Extent of computerisation.
- (d) Full time employees.
- (e) Higher grade posts.
- (f) High productivity assessment by managers and employees.

2. Effectiveness was associated with:-

- (a) Low degree of computerisation.
- (b) Extensive use of modern equipment.
- (c) Encouragement of teamwork by managers.
- (d) Extent of training.
- (e) Care in making new appointments.
- (f) Employees' familiarity with work of other departments.
- (g) Employees' ability to cope in a crisis.
- (h) Co-operation by Employees.

It was hypothesised that offices which displayed differing levels and combinations of high and low efficiency and effectiveness would be distinguishable in the way that work was organised and tasks carried out. The shared characteristics of each grouping of the productivity

factors would illustrate one form of productivity orientation and reveal some aspects of the organisational practices which underpin differing combinations of the productivity components. Harrison⁽³¹⁾ has argued that the failure to recognise the ideological issues that underlie aspects of organisational performance is common among managers and administrators. These differing ideologies, claims Harrison, are more adequate at explaining the ways in which various systems of thought determine organisational characteristics than some of the more conventional analytical frameworks of many behavioural scientists.

The term 'orientation' is adopted for this study to describe each grouping of the productivity factors, because it conveys more of the feeling of a set of norms about the way that work should be organised in the furtherance of levels of productivity appropriate to a particular office.

It is the writer's contention that offices have a productivity orientation which is manifested in the attitudes and behaviour patterns of the workforce and the procedures by which tasks are carried out.. The productivity orientation of an insurance office will be different from the productivity orientation of an office in the premises of a company in the engineering industry. If the values of both management and employees in a particular form of productivity orientation

emphasise the need to develop efficient and effective approaches to the performance of the information service, the office will have an orientation which reflects these values. The four office orientations which follow are those which are appropriate to each of the four combinations of the productivity factors.

1. Task oriented Offices. (High efficiency/high effectiveness).

Five of the offices studied for this project were located in this quadrant of the matrix, all of them in the insurance sector. They were all located in modern city centre office blocks and were users of modern equipment and facilities. They were staffed by full time employees and from the job titles reported on the questionnaires it was clear that they had in the main a substantial proportion of higher grade, almost semi-professional jobs, e.g. insurance officer, motor insurance underwriter. The concern of management for productivity was high, indicated by the high scores on the management behaviour variables. The data also showed that these offices were staffed by employees who were flexible and co-operative in their approach to their duties and tasks.

Although each of the insurance firms in which these offices were based had a computer, there was little

evidence of computerised routines being followed in the tasks being carried out. This was because the particular offices surveyed were branch offices of large national insurance firms, and the computer work was carried out in a separate location thus explaining the degree of high efficiency associated with extensive computerisation .

A subsequent analysis of the questionnaires and the notes which were taken by the writer during the visit to these offices shows that the offices in this group operated in an environment in which flexibility and sensitivity to varying demands were important. These five 'task oriented' offices comprised specialist teams of employees who used the unifying power of the group to maximise efficiency and to bring together the appropriate resources at the right time to accomplish their tasks. The employees were adaptable in their approach to their work and as a result had a high degree of autonomy, forming groups of specialists whose main concern was the completion of the task in hand.

2. Production oriented Offices. (High efficiency/low effectiveness).

This quadrant of the matrix contained 7 offices in the engineering group and 5 in the insurance group. They

were mainly large groups of employees in the larger life insurance offices or in some of the data preparation sections of the engineering firms. Many of the employees had job titles such as punch card operator, or data preparation operative, thus making it clear that their tasks were closely related to computer schedules. The offices in this group were associated with low scores on the management behaviour variables, thus indicating a low degree of interest by management in the performance of the office coupled with a corresponding low level of commitment on the part of the employees.

Thus there are grounds for concluding that the offices in this group had the technology and equipment to form a basis for a high level of productivity, but they were low in effectiveness because of behavioural factors.

This group of shared characteristics is termed a production orientation because it represents an operations management view of the information service and seeks productivity improvements by adopting an approach similar to that of a manufacturing process. Thus productivity is viewed as an internal standard of performance, i.e., a comparison of the volume of information produced with the resources consumed in the process.

Similar to the operations of a high volume manufacturing unit, the tasks in production oriented offices were explicit, subject to standardisation with well

established operating procedures. Supervisory skills in this orientation are not people skills but technical skills and thus productivity is viewed as an internal standard of performance, i.e. a comparison of the volume of information, documents etc., produced with the resources consumed in the process.

In production oriented offices, the emphasis on the application of technology to routine programmable operations results in clear economies of scale as the result of mass production techniques in the office. Thus the office is regarded as a production unit where co-ordination and uniformity are more important than flexibility and where the emphasis on the volume of production is more important than the provision of an information service to the organisation. The 12 Production Oriented Offices were the most 'factory-like' offices of those that were studied. Mostly open plan in design, thus emphasising the 'production line' effect, they were staffed by employees whose low scores on the employee behaviour variables suggested that positive service productivity qualities would not be a feature of their work performance. In addition, these offices were supervised by executives who appeared to regard the performance of the office as unimportant, possibly on the assumption that technology and the use

of modern methods and equipment would be sufficient to ensure adequate levels of performance.

3. Function Oriented Offices. (Low efficiency/low effectiveness).

3 offices were located in this section of the matrix, 1 in the engineering sector and 2 in insurance. They were all small work groups, and were staffed by part-time employees or staff provided by an employment agency. In the main there was little use of modern equipment and in the two insurance offices, computerisation was low, although in this case, these offices were branch offices with centralised computing facilities located elsewhere. One of the most interesting characteristics of this group was that, in the case of both executives and employees, the productivity evaluation was 'low'. Thus these offices were staffed by employees who considered that the performance of their own office was not as high as it could be. This is a remarkable admission when it might be deduced that any admission of low productivity on the part of an employee or an executive might reflect badly on their own contribution. The low evaluation by the executives suggests that either they considered that the performance of the office was unimportant, or that any improvement in office

productivity was not a matter with which they in particular should be concerned. The possibility exists moreover that the executives in these function oriented offices did not possess the ability to improve the productivity of their offices or to communicate improvement strategies to the employees.

Further examination of the notes which were taken during the visits to these offices suggests that function offices tended to be small work stations which existed to undertake a specific information service often of a temporary nature. In such cases resources are not available to justify the use of modern equipment, and in cases where money and people have to be rationed there was some evidence that a firmer control was exercised by senior management to supervise methods of working. This productivity orientation was typical of small offices or departmental sub-units in manufacturing concerns, which were physically separated from the main office activity and which were limited in scope to the fulfilment of prescribed functions or activities which were ends in themselves rather than a service to the organisation as a whole. Examples of function oriented offices from this study were small groups of office employees

who have been formed to help out with the work of another department.

4. Dependence Oriented Offices (Low efficiency/high effectiveness).

This orientation emphasises the service aspect of the office often at the expense of the efficiency benefits to be derived from modern equipment and technology. Offices oriented in this way exist primarily to serve the interests of the organisation or the specialist activities of certain key individuals. In the offices investigated for this study, 7 were categorised as having low efficiency/high effectiveness and thus a dependence orientation. Five of these offices were in the insurance sector and two were in engineering: none were highly computerised and six were 'small' offices. Examination of their range of duties suggested that they tended to be closely involved with a particular organisational function or activity, e.g. motor vehicle accident claims.

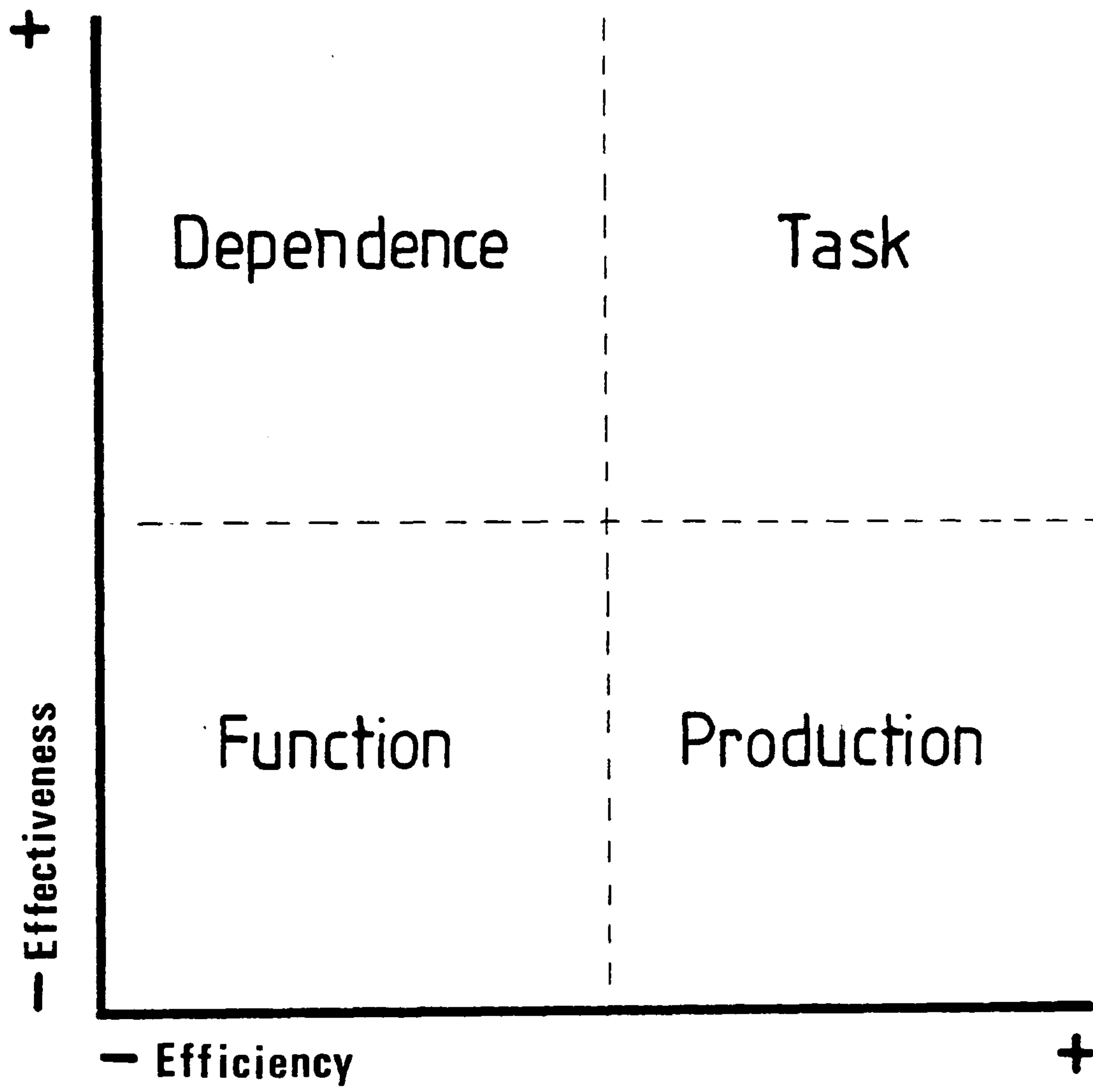
Further analysis of the notes taken by the writer during the visits to these offices suggests that their work style was based on precedent, on anticipating the preferences and desires of some higher power source e.g. a senior individual in the organisation. In some

of the smaller firms these offices were supervised by executives who exercised a form of benevolent authority, with the employees being cared for rather than exploited. In one insurance office a group of four secretaries/typists were responsible for the administration of a sales department under the direct supervision of a branch inspector. In such an office, individuals were expected to influence each other by example, and by assisting with the sharing out of any unpleasant tasks. This orientation was characterised by commitment to the organisation by the employees and a high concern for the welfare of colleagues.

Perhaps the most interesting feature of this group of offices was that they were all small groups and the impression was formed by the writer that their work pattern was unstructured and highly informal. They appeared to be less involved in routine tasks than many of the other groups and appeared to place considerable importance on the maintenance of good and constructive working relationships, sometimes at a cost in terms of efficiency. The four productivity orientations which were shown to be associated with the groupings of the productivity components are illustrated in Fig. 9.2 overleaf.

Fig. 9.2

The Four Productivity Orientations.



Conclusions

This chapter has presented an account of the analysis of the results which emerged from the empirical part of the study. The analysis of the data has shown that levels of efficiency and effectiveness varied quite substantially in the offices which were studied. Supplementary findings were observed regarding differences in the ways in which the variations in the levels of the two productivity components combined in offices of different productivity orientations each of which formed a unique pattern of productivity and illustrated the variations in the organisational characteristics which operate to achieve differing productivity formats.

The findings on efficiency in the offices studied showed that this variable was closely associated with the insurance sector offices and with those offices which made extensive use of computers and modern equipment. In addition, efficiency was found to be associated with offices which were staffed by full-time employees in the higher grade posts. Of considerable interest also is the finding that efficiency was not associated to a significant extent with either the management or the employee behaviour variables.

The findings on efficiency and the two technology

variables (computerisation and modern office equipment) give support to the assertion that the productivity gains associated with the introduction of technology to office operations tend to be limited to increased efficiency. The introduction of technology to office operations would normally be expected to result in increases in both the efficiency and the effectiveness components of productivity. All the more interesting, therefore, are the findings of this study, particularly those on computerisation, findings which highlighted the fact that increased productivity associated with the use of computers is limited to the efficiency component. Just as the adding machine and the typewriter provided efficiency benefits in the 1920's and the 1930's so the same momentum to greater efficiency was discernable in the offices which were studied for this research project. This finding is indicative of a less than convincing justification for the popularly held view that modern computing equipment contributes to a more comprehensive increase in productivity.

Reasons must be sought as to why the insurance offices were more efficient than the engineering offices. One explanation might be the suggestion that in two sectors of economic activity as distinct as insurance and

engineering there would be in existence quite different sets of ideas on efficiency in the office. In many goods producing organisations, ideas on productivity reflect the nature of their particular industry. Thus an engineering firm is likely to have a productivity strategy which is based to a considerable extent on the machine theory of organisation by which the performance of services will be peripheral. The deterministic orientation of a manufacturing concern is likely to result in the rigid inflexibility of task structuring and the more formal allocation of responsibilities. By contrast, it seems possible that the insurance offices would be more likely to apply more appropriately the use of technology to the office service since the insurance business by its very nature is concerned with the production of services. The service orientation of the insurance offices, in itself, could reasonably be considered to be an explanation for the higher efficiency recorded for offices in this sector. The implications of the efficiency results suggest, therefore, that the nature of an organisation's operations (e.g. goods or services) is an important determinant of the way that office productivity is achieved and that this goods/service distinction explains varying combinations of levels of efficiency as opposed to effectiveness, as

exemplified by the results found for the differing productivity orientations.

The findings on effectiveness have shown that this productivity factor was most prevalent in those offices which made extensive use of modern equipment, but which were low in the degree of computerisation. Thus the economic benefits of higher efficiency in the information service due to computerisation were counter-balanced by the low indices of effectiveness found. This has the rather surprising implication in that it modifies many of the claims of modern technology that electronic information processing increases "productivity".

The offices which were highly effective were characterised by having a workforce which revealed a high degree of co-operation with other members of the organisation, was capable of dealing with crises and, was familiar with the work of other departments. These employee behaviour variables were in turn found to be closely associated with certain management behaviour variables which according to the later analysis were the true determinants of employee behaviour and consequently of effectiveness. Thus the results have shown that the most important variable in the determination of higher levels of

effectiveness in the offices studied is the behavioural contributions of management.

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CHAPTER TEN

CONCLUSIONS

It has been an assumption of the author in this study of offices that an extension of the basic knowledge upon which our understanding of offices is grounded will be of some value in developing the perspective necessary for meeting the demand for performance assessment for offices in organisations. Despite their increasing importance to organisational functioning and to the operation of the modern economy, office activities remain one of the most neglected areas of study and analysis by students of organisational behaviour and management. Service activities in organisations and especially offices have emerged only comparatively recently as identifiable subject areas for business and management and research, the literature having previously displayed a pre-occupation with studies of manufacturing industry at the expense of the service sector.

In order to understand the role and function of the office in contemporary organisation, it was decided to begin the study by tracing the evolution of the office function. The changing nature of the office is closely bound up with the evolving patterns of urban life, with major economic and social developments - especially the

industrial revolution - and with a series of inventions and innovations in the field of communications. From the Middle Ages to the 20th century, the office worker has undergone a series of changes from that of a learned scholar with professional status to a machine operative with measured output standards similar to that of a factory employee. In addition, as a result of the way in which office employment has developed, there exists in the minds and attitudes of many office workers the idea that they should be exempt from the subject of a productivity study.

Having outlined the evolutionary context of offices, an analysis was undertaken in Chapter 2 of the statistics pertaining to and the significance of the rising proportions of office employees. The increasing number of white collar workers has been one of the outstanding features of economic development during the 20th century and as a result of this, there has arisen a need for the development of performance criteria which are appropriate to the activities of offices. Economic development has seen the rapid growth of office employment in the majority of advanced economics, resulting in extensive restructuring of the office workforce both in terms of the range of occupations represented and in its sex structure. Many

traditional office jobs have virtually disappeared completely, while demands for the new skills concerned with modern working practices and technology are increasing. For these reasons, the first two chapters of this study were concerned with setting forth the evolutionary context and the numerical significance of previous research study on office productivity.

Before embarking on the development of a theoretical model of productivity, it was considered advisable to examine in some detail the unique characteristics of the occupational group "white collar workers" so that the productivity theory which was to be later specified could match more accurately the particular employee group and occupational environment of the office. Thus Chapter 3 explored the question of the definitional attributes of the occupational group "white collar workers" and compared alternative theories of occupational identity as a means of highlighting the special aspects of the nature of productivity in offices. For this reason any theory of office productivity must recognise that the workforce and the institutional environment of the office are quite different from those of the shop floor. Office employees were considered to be different from other employee groups for a number of evolutionary and socio-

psychological factors concerned with their particular position in the organisational environment. Many groups of office workers were observed to be carrying out duties and tasks largely indistinguishable from factory operatives, but, because their place of work was "the office", their perception of their status and role as employees was one of a special category of worker.

Having examined the evolution of the office, the numerical significance of the increasing numbers of office employees, and the distinct characteristics of office employment, attention was then focussed on an analysis of the concept of productivity. A critical evaluation of traditional theories of productivity measurement was undertaken to ascertain their potential relevance to the performance of units of administrative activity. Various interpretations of and approaches to productivity were discussed in an attempt to elucidate the ways in which traditional measures of productivity could be applied to the work routines of the office. The inappropriateness of the more conventional productivity theories as explanations of productivity in offices led to a more detailed examination of the nature of productivity in the context of an administrative unit. The literature on administrative productivity was then

examined and the significance of the phenomenon of increasing administrative overheads was considered in the light of the inadequacy of existing theories in this field.

In developing a model of productivity for the office, account must be taken of the disparate nature of the services provided by any office to organisational members. An examination of the range of activities - variations in volume, quality, timeliness, cost and degrees of satisfaction to those served - leads to the viewpoint that no one measure could be derived which would be an objective and acceptable indicator of performance. The nature of the 'product' which is the output of an office means that a true understanding of productivity has to examine possibilities which extend beyond traditional theories based on the industrial model to a model which reflects the special characteristics of a service activity. Office service activities were conceptualised in performance terms, therefore, as having an internal and an external dimension. For the purpose of this study, the internal dimension of performance was termed 'efficiency' and the external dimension 'effectiveness'.

The model of office productivity adopted a systems view

of efficiency together with the basic idea of output per unit of input. In this way the efficiency of different offices could be compared. The systems view of efficiency was interpreted as the extent to which the office was able to offer sufficient motivation to employees to elicit their personal contributions to the increased volume of output by the office in a given time period. Accordingly, efficient offices were those in which modern working methods and equipment were extensively used, and in which employees were encouraged to work efficiently. The efficiency dimension was seen as having a mechanistic aspect and, as such was interpreted in terms of the economic utilisation of resources, without regard to the consideration of human or personal factors. If efficiency in the office is regarded in machine like terms, it is possible to define it in the economic sense as the least necessary expenditure of resources to attain the desired outcome. Thus both the systems and the mechanistic attributes of the concept of efficiency were incorporated in the measures of efficiency which were adopted to compare the offices studied and the questions which were set to the employees and the executives were focussed on volume of production and costs in terms of resources consumed, both human and mechanistic.

The second dimension of the model of office productivity was the external standard of effectiveness which was applied to the activities of the offices studied. The effectiveness of an office as assessed by an organisational evaluation was seen to be concerned with the extent to which the office was meeting the needs of or satisfying the evaluation criteria of the users of the information service. Chapter 7 reviewed the literature on organisational effectiveness focussing on two approaches, the goal model and the systems resource model. The goal model was considered inappropriate for this study because of the diverse and specialised nature of the way in which the information service operates in organisations.

The systems resource model of effectiveness was examined and considered to an extent to be appropriate to the study undertaken here (Chapter 6). The elements of this model were, however, judged to be insufficiently comprehensive to encompass the entire concept of effectiveness in its application to the office. Accordingly, a modified systems resource model was used to measure the effectiveness of the offices studied because it defines effectiveness in terms of the bargaining position of each office to "exploit its environment in the acquisition of scarce and valued

resources"⁽¹⁾. Thus an office will be most effective when it maximises the integration of its component parts and optimises its ability to cope with the organisational environment from which it obtains its resources (inputs) and to which it provides a service (outputs). The systems resource concept of effectiveness was modified and subdivided into three factors which were judged to be those which could be used to compare the effectiveness of different offices. The three factors, Adaptability, Appropriateness and Resource Bargaining Power were used as measures of the degree to which each office was successful in acquiring and utilising scarce and valued resources. Thus the model of productivity conceptualised two independent components efficiency and effectiveness for evaluating the productivity of offices. It was claimed that an office can be both efficient and effective, neither efficient nor effective, efficient but not effective, or effective but not efficient. Some confusion between efficiency and effectiveness can arise because efficiency is frequently regarded as a valued social standard and can be used as a basis for the assessment of productivity standards when the office really should be evaluated on other grounds. Decades of scientific management and the transfer of industrial model techniques to service units have led to the

reverence displayed by practising managers for efficiency as a valued social ideal. In such a climate, the attainment of efficiency may be used as an argument to achieve objectives which are really better decided by other criteria.⁽²⁾

Having developed the two dimensional model of office productivity the next stage of this research project was to discover the categories of office in which high and low levels of efficiency and effectiveness were observed. A sample of offices in two industry groups was prepared and the survey of both executives and employees was undertaken to establish variations in levels of the productivity components. An assessment was also made of different characteristics of the offices and the workforce and of the way that work was allocated and responsibilities discharged. The data showed that the offices, when grouped in accordance with variations of the productivity components, revealed "productivity orientations" which were a reflection of their industry grouping and other technological and behavioural variables. The orientation of an office explained the way in which certain productivity strategies were adopted. The results of the analysis of the data showed that the ways in which a large office in the engineering industry revealed combinations of

efficiency and effectiveness were quite different from the productivity patterns of smaller offices in the insurance industry. The low efficiency indices for the engineering offices suggested that there are limited productivity gains to be made from a transfer of the manufacturing strategies which have been the source of productivity increases in industrial activities.

The results showing the close association between the high effectiveness offices and the employee and management behaviour variables are of considerable interest. This study has shown that the offices which were highly effective achieved this as a result of the way that employees co-operated to form a co-ordinated and purposeful social unit. The main determinants of the formation and successful operation of such a unit were the managerial inputs concerned with training and the creation of teamwork. The significance of the managerial and employee behaviour variables on effectiveness has already been stressed, but the effectiveness results suggest that variations in effectiveness are associated more directly with managerial variables which influence the employee behavioural factors to bring about particular "productivity orientations".

The results of the data and the observations of the author

in carrying out this research suggest that future strategies and research relating to office productivity should focus on a broad and comprehensive view of the objectives and opportunities for productivity increase in the offices of any one organisation. This means the rejection both of single effect strategies and of the expectation of sudden solutions to productivity problems by the introduction of e.g. automated procedures. As information and the use of information become more predominant in organisations, the question of productivity of resources used becomes a vital concern giving rise to a need for research to produce a definition of the situational variables which determine the potential for productivity increase brought about, for example, by office automation.⁽³⁾ An awareness of the irrelevance of the industrial model of productivity to the activities of services raises the need for more specific research into individual case histories of technological innovation in offices. Such research should examine alternative strategies for experimentation and innovation together with a comparison of different policies and their effect on individuals with regard to training and replacement.

Further research into productivity improvement

strategies which are technologically based could be supplemented by ongoing research which would throw further light on the ways in which arrangements can be made to bring office employees toward their productive potential. The literature on management and business makes it clear that the factory has been recognised as a social organism with all the characteristics of hierarchy, and that this hierarchical framework has been subjected to detailed study by scholars of management. The continuing increase in office employment suggests that new and more appropriate productivity strategies will require to be developed and that such strategies will be required to recognise the special characteristics of the office as an organisational service unit and to reflect those characteristics in the formation of standards for the evaluation of performance.

Further research in the area of service unit performance with particular regard to the people factor should be focussed not on seeking broad generalisations about human behaviour, but should deal with particular groups in particular work environments. The need is for research into the ways in which different occupational groups react to different working situations rather than a search for general behavioural characteristics among

employees with emphasis on similarities. There is also a need for more experimentation with the "office" as the focus of the study so that the specialist nature of the variables which determine the performance of the organisational information service can be subjected to enquiry and analysis. This will permit the generation of new knowledge on that aspect of an organisation which is concerned with the raw material of communication and decision making.

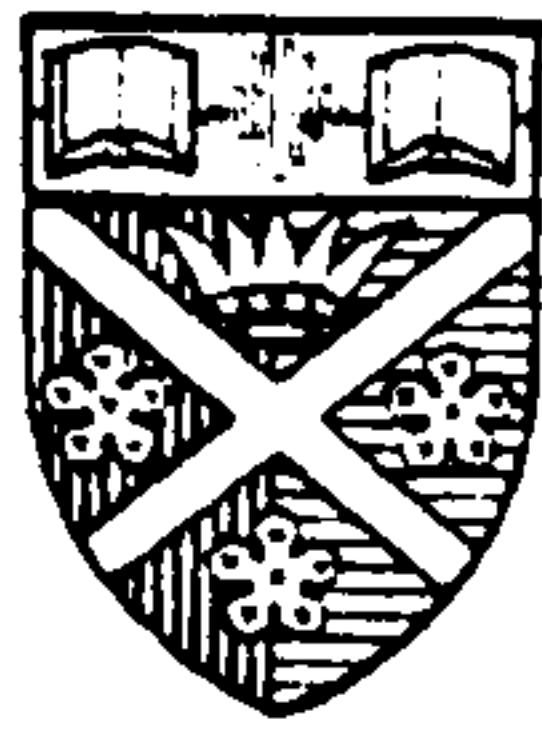
It is hoped that the two dimensional approach to productivity in offices suggested by this study might provide a framework for future and more detailed research into the determinants of efficiency and effectiveness in a wider range of office environments.

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A P P E N D I C E S .

APPENDIX 1.



University
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Head of Department
Professor Thomas F. Carbery, MSc(Econ) PhD DPA

Department of Office Organisation

Stenhouse Building
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Dear

I am a member of the academic staff of this University and I am writing to you to seek your co-operation in a research project which I am undertaking. My research topic is productivity in offices and I am seeking additional knowledge about the extent to which certain factors influence the productivity of office work.

To test my theories, I have prepared two questionnaires. The first is a series of questions which I would like to put to groups of clerical workers who are working in routine jobs, e.g. copy typists, audio typists, punch card operators, data prep. machine operators or workers who are involved in routine sorting or classifying of documents. The second questionnaire is one which I would like to be answered by an executive who has responsibility for the efficiency of office work.

Both questionnaires are completely impersonal and confidential and no firm or individual will be asked to put their name or sign any item. The answers from your organisation will be combined with those of others and only summarised results will be included in the project report thus ensuring total confidentiality.

My request to you is, therefore, twofold. Firstly, would you be prepared to issue my questionnaire to groups of clerical workers whose work is routine in nature. Secondly, would you be willing to ask one or more of your executives with responsibility for office work to answer a short questionnaire on certain aspects of the work?

I am enclosing a copy of each of the questionnaires so that you may examine the type of information I am seeking. If you are prepared to assist me in the research, I would be grateful if you would let me know by returning the reply form in the stamped addressed envelope, both of which are enclosed. If there is any additional information you require, or if you have any questions, I would be very happy to discuss my research with you. Your co-operation in this project would be very much appreciated.

Yours sincerely,

A.M. Fleming,
Lecturer

Enc.

APPENDIX 2.

EMPLOYEES' QUESTIONNAIRE

Explanatory Note

This is part of a study about productivity in offices. The main purpose is to learn how different types of offices operate and what aspects of work in offices help with productivity. In each office we need the co-operation of many people like yourself and the success of the study will depend on the information that you give us. We need to know about various aspects of the work and your opinion of the work you do and the organisation in which you work.

There are no right and wrong answers in this questionnaire. The most important point is for you to answer each question in the way that things seem to you personally. The final value of the study will depend on the frankness and care with which you answer the questions. Your individual answers are completely confidential. You are not asked to sign or put your name on any item; your answers will be combined with those of others and only summarised results will be considered.

Please answer the questions in the order that they appear by marking with a tick (✓) the box which indicates the answer which comes nearest to your view.

Thank you for your co-operation.

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April, 1978

APPENDIX 2. (continued)

		<i>A great deal</i>	<i>Quite a lot</i>	<i>About average</i>	<i>Not very much</i>	<i>Not at all</i>
1.	To what extent are modern working methods encouraged in this firm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Would you say that employees are expected to work efficiently?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	To what extent are modern office equipment and machines used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	How familiar are the people who work in your department with the work of other departments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	To what extent are employees encouraged to do more than one job?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	To what extent are you encouraged to believe that your work is important to the firm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Would a sudden rush of work cause difficult problems in the office?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Would you say that the management try to make the office workers feel part of a team?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	To what extent do the workers in the office anticipate difficulties before they arise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	To what extent are the people in this office interested by their work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	To what extent would the management regard industrial action by office employees as serious?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 2 (continued).

	<i>Very well</i>	<i>Well</i>	<i>About average</i>	<i>Badly</i>	<i>Very badly</i>
12. How do you rate the way in which staff are trained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. How do you think the office copes in a crisis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. How well do the people in this office co-operate with each other?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. How do you rate the care taken by management in the appointment of new office staff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. How do you rate the way in which staff are informed about the firm's activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. How do you rate the quality of the service which this office provides in the firm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Continued overleaf/

APPENDIX 2 (continued).

	<i>Very often</i>	<i>Often</i>	<i>Occasionally</i>	<i>Seldom</i>	<i>Never</i>
18. How frequently are changes in working methods introduced to improve the standard of work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. How common is it for people from other departments to help out during busy periods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. With what frequency are ideas and information exchanged with other departments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Are the staff in this office often bored by their work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. How frequently are you asked to help out in other departments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. What age are you? (Tick)					
(Under 20) (20 - 29) (30 - 39) (40 - 49) (50 or over)					
24. What is your sex? (Tick) Male Female					
25. How long have you worked for this organisation? (Tick)					
Up to one year..... Over 1 year and up to 3 years					
Over 3 years					
26. What is your job title?					
27. Are you (tick) married..... singledivorcedwidowed					
28. Do you work part-time or full-time?					
29. Please mention here any points which in your opinion would make the office more efficient:					
.....					
.....					
.....					

APPENDIX 3

SENIOR EXECUTIVES' QUESTIONNAIRE

Very Important _____
Important _____
Not Important _____

Instructions:

Please answer the questions in order by marking with a tick (✓) the box which indicates the answer which comes nearest to your view.

1. Which of the following would help with productivity in the office?

More mechanisation

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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More modern working methods

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

More co-operation between departments

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

More flexibility in the use of staff

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

More interest by office staff in work

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

More co-operation between individual members of staff

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

More awareness by senior management of the importance of the work of the office

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

More adequate basic education of office workers (e.g. better spelling, etc.)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

APPENDIX 3 (continued).

2

2. In what order of important would the following help with productivity in your office (mark in order of priority, e.g. 1st, 2nd, 3rd, 4th, etc.).

Order

- (a) New machines and more modern work methods
- (b) Flexibility to transfer staff to other departments when necessary
- (c) Co-operation by office staff and interest in their work
- (d) Consideration by senior management of the importance of office work.

Please mention any other points which in your opinion would make the office more efficient:

.....

.....

.....

3. To what extent are you a user of computerised information systems? (Mark with a tick.)

Highly Computerised Medium Computer Use Very Little None

4. To what extent do the following factors limit the productivity of the office?

Very Important Important Not Important

- (a) Too many Government Regulations
- (b) Lack of training of employees in specific skills, e.g. typing, etc.

5. How would you rate the productivity in the offices in your organisation?

Well above average Above average Average Below average Well below average

APPENDIX 4.

CORRELATIONS OF QUESTIONNAIRE RESPONSE ITEMS

	V1	V2	V3	V18	V4	V19	V20	V22	V6	V11	V16	V17	V5	V7	V10	V21	
V1	-	33	61	38	30	16	21	09	30	28	34	35	14	10	31	24	
V2		-	33	30	28	12	21	01	22	35	30	29	31	01	36	20	
V3			-	44	30	25	18	05	27	21	33	25	14	12	34	20	
V18				-	21	22	25	13	29	09	34	16	25	21	28	18	
V4					-	26	45	27	20	16	29	21	34	15	28	24	
V19						-	31	25	25	14	35	12	23	09	28	20	
V20							-	29	34	24	21	15	35	16	30	29	
V22								-	01	08	03	05	20	04	06	04	
V6									-	30	45	26	26	10	30	23	
V11										-	31	33	15	02	23	17	
V16											-	33	19	10	37	26	
V17												-	26	09	27	13	
V5													-	24	29	20	
V7														-	27	30	
V10															-	52	
V21																	Resource Bargaining Power

Note: Decimal Points have been omitted.

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