
The manpower scene 1983

S.S. Terblanche
J.J. Jacobs
Joyce van Pletzen



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Pretoria
Human Sciences Research Council
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S.S. Terblanche, B.Sc., M.A., Executive Director
 J.J. Jacobs, M.Sc., Senior Researcher
 Joyce van Pletzen, B.Com. (Hons.), Senior Researcher

Institute for Manpower Research

Executive Director: S.S. Terblanche

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1 INTRODUCTION

This is the second report of the HSRC's Institute for Manpower Research in which an attempt is made to give an overview of some of the important changes on the manpower scene. Much of the information stems from our own research, but other sources are also used. The reasons for publication remain the same. Organizations have to plan and in order to plan they need information. In the manpower field it is usually relatively easy to obtain information about an organization's internal situation, but it is not so easy to obtain information about the external manpower environment in which the organization operates. Without such information the organization can hardly judge how realistic its own planning efforts are. We are well aware that the information that we can supply will not dovetail neatly with that of the organizations, but we do hope that the manpower planner will be more aware of the changes that will have to be faced and coped with.

2 MANPOWER AND DEMOGRAPHICS

Projections of the population and estimates of the growth in the labour force were supplied in the first report, but as these are so important as a basic backdrop to any attempt at manpower planning they are repeated here. Tables 1 and 2 speak for themselves and illustrate the population explosion the RSA has to cope with. This is nothing new, but not less grim because of its elderliness. Table 2 holds some glimmer of hope: the growth rates in the labour force tend to flatten out in all the population groups because the fertility rate is decreasing, but not nearly fast enough for the labour-absorbing capacity of the South African economy.

TABLE 1

PROJECTIONS OF THE SOUTH AFRICAN POPULATION (INCLUDING THE INDEPENDENT BLACK STATES) FOR THE PERIOD 1980-2000

Year	Population group									
	Asians		Blacks		Coloureds		Whites		Total	
	N	%	N	%	N	%	N	%	N	%
1980	813 000	2,8	20 700 000	72,5	2 539 000	8,9	4 499 000	15,8	28 551 000	100
1985	889 000	2,8	23 700 000	73,6	2 794 000	8,7	4 823 000	15,0	32 206 000	100
1990	964 000	2,7	27 100 000	74,7	3 070 000	8,4	5 163 000	14,2	36 297 000	100
1995	1 041 000	2,6	30 500 000	75,5	3 348 000	8,3	5 517 000	13,6	40 406 000	100
2000	1 108 000	2,5	33 700 000	76,2	3 607 000	8,1	5 817 000	13,2	44 232 000	100

Source: HSRC, ISODEM

TABLE 2

ANNUAL GROWTH RATE IN THE LABOUR FORCE, 1980-2000

Year	Population group									
	Asians		Blacks		Coloureds		Whites		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1980-1985	2,6	2,2	3,0	3,0	3,3	3,2	2,0	2,0	2,9	2,8
1985-1990	2,5	2,3	2,8	2,8	2,7	2,4	1,9	1,9	2,6	2,6
1990-1995	2,4	2,0	2,6	2,6	2,2	1,7	1,7	1,5	2,4	2,3
1995-2000	1,9	1,1	2,6	2,7	1,9	1,5	1,1	0,9	2,3	2,2

3 ASPECTS OF THE SUPPLY OF LABOUR

3.1 PRODUCTION OF THE SCHOOL SYSTEM

The supply of labour is a function of population size, but the relationship is not unidimensional and the manpower planner is not very interested in size alone. He wants to know about the availability of the skills he needs, not only for the present but also for the future. This need is much more easily expressed than satisfied.

All projections, no matter the sophistication of the method, are usually based on past trends and a certain set of assumptions (scenarios if so preferred) which to a very large extent determine the results. This should not be regarded as meaning that projections are useless - far from it. However they should just be used for what they are: tools to increase the probability that our planning is based on reality and not on fancies.

Most of the information supplied in this section will not even include projections: past trends will be analyzed and expressed as an annual compound rate of change. The educational level of the labour force, expressed in terms of formal education, is perhaps not a very good indication of the skills level but it at least gives an indication of the trainability of the labour force. Figures 1 and 2 show the increase in the number of pupils in various standards and Table 3 gives the growth rates based on the line of best fit.

TABLE 3

COMPOUND GROWTH RATES FOR PUPILS IN STD 8 AND STD 10

Population group	Growth in the number of pupils		Growth in the number of senior certificates awarded	
	Std 8	Std 10	Without matriculation exemption	With matriculation exemption
Asian	6,0	9,0	4,4	17,9
Black	16,5	23,7	28,3	13,3
Coloured	9,2	16,7	21,2	11,8
White	1,2	4,2	0,6	5,3

FIGURE 1(a)
NUMBER OF PUPILS IN STD 8

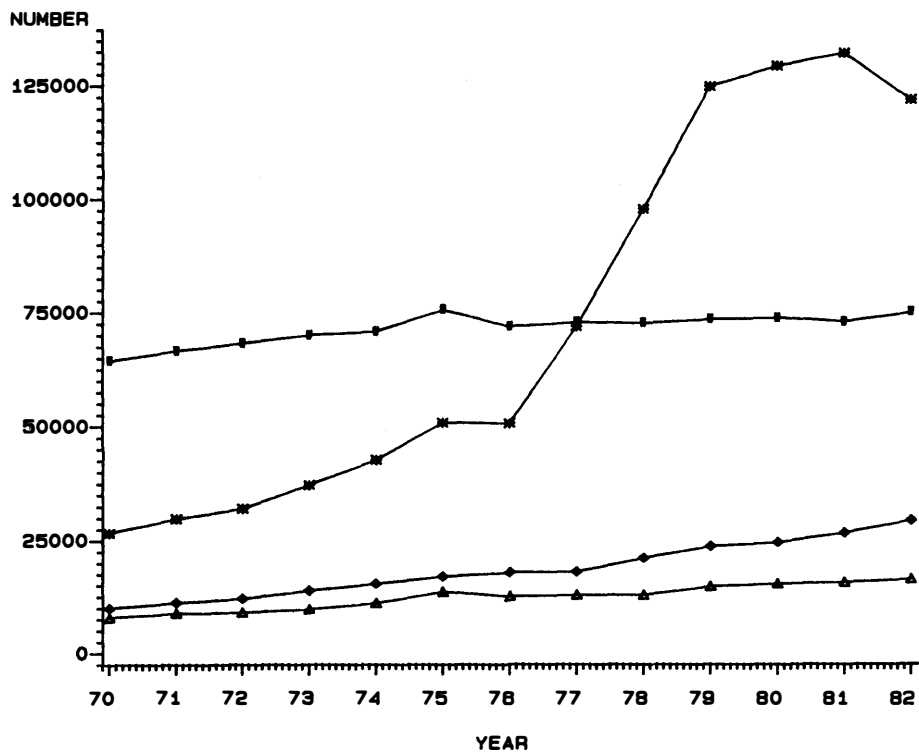
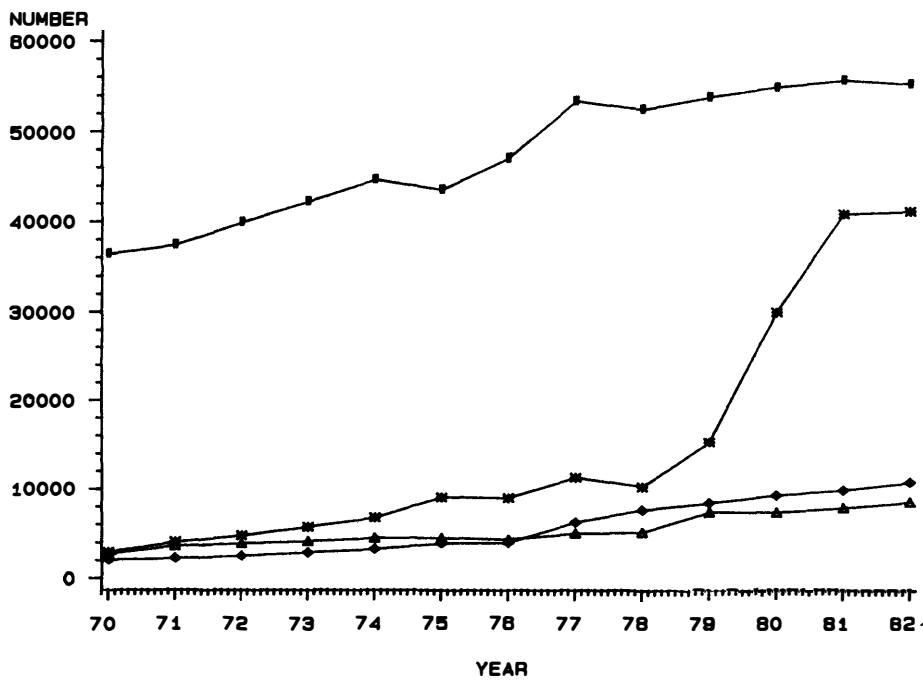


FIGURE 1(b)
NUMBER OF PUPILS IN STD 10

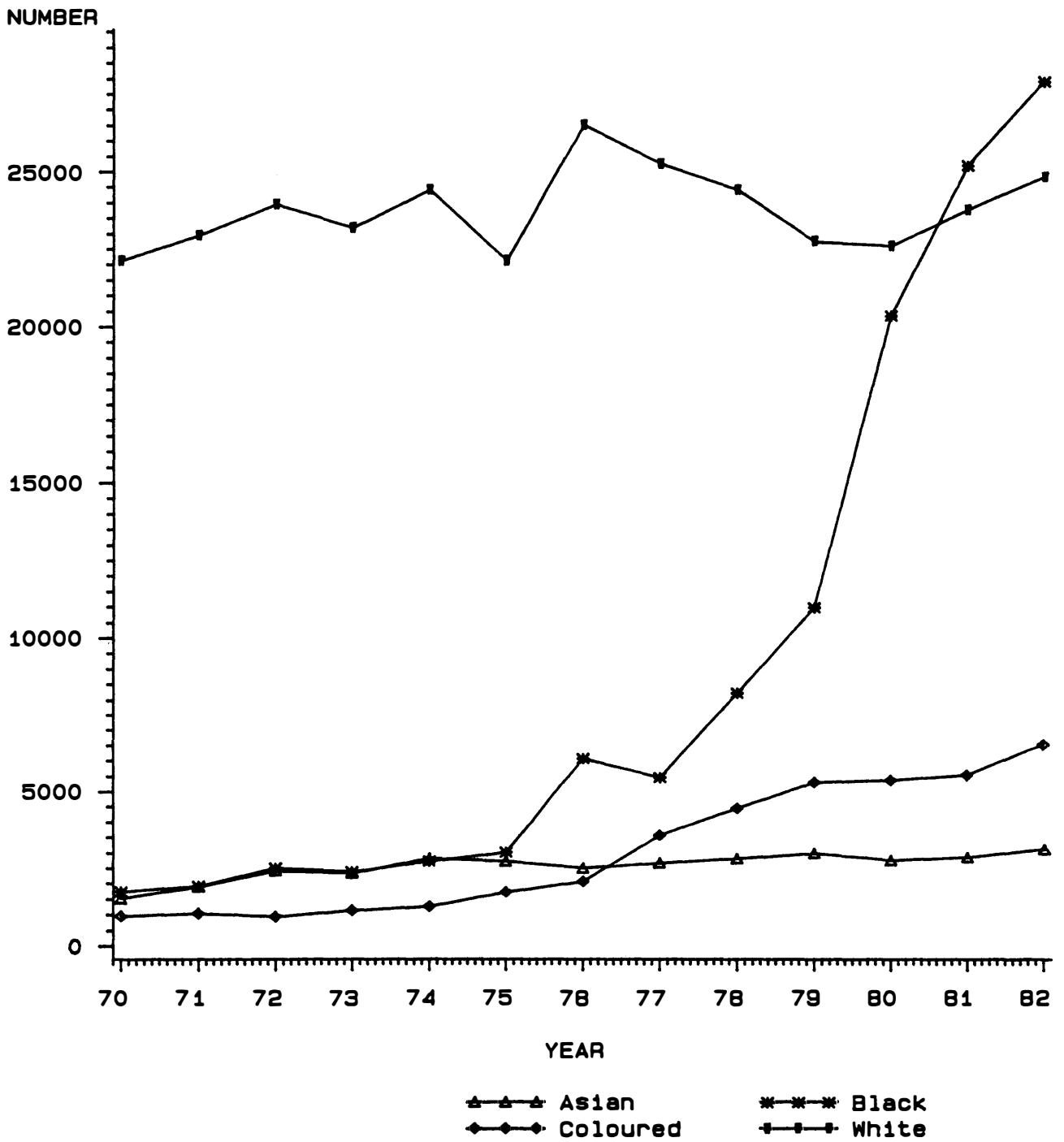


LEGEND: ▲-▲-▲ Asian ■-■-■ Black
 ◆-◆-◆ Coloured ○-○-○ White

Source : Central Statistical Services

FIGURE 2(a)

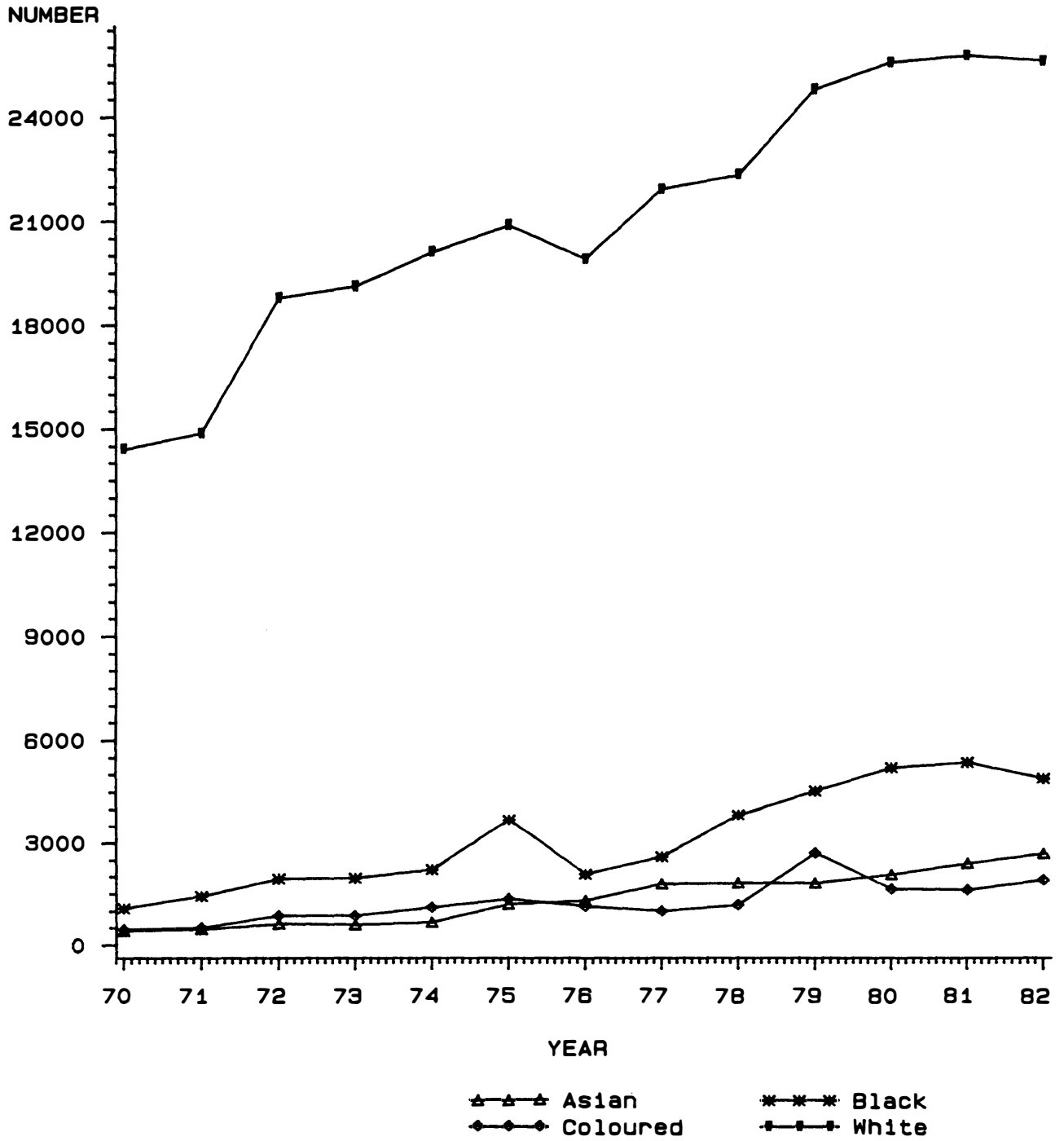
NUMBER OF SENIOR CERTIFICATES ISSUED WITHOUT MATRICULATION EXEMPTION



Source : Central Statistical Services

FIGURE 2(b)

NUMBER OF SENIOR CERTIFICATES ISSUED WITH MATRICULATION EXEMPTION



Source : Central Statistical Services

All the growth rates, with the exception of those for Whites, are much higher than the population growth which means that more and more youngsters are staying at school longer. That the holding power of schools is indeed increasing is also born out by other statistics: in 1974 only 12 % of the Coloured Std 6 pupils reached Std 10 and this percentage increased to 25 in 1982 and is still increasing. The percentages for Asians are 32 and 53 respectively. Even if larger numbers will go on to some kind of tertiary education, it is clear from the magnitude of the figures that the number of job seekers with high-school qualifications up to Std 10 (with the exception of Whites) will increase sharply. We shall have a more trainable work force even if variances in the standard of education do occur. But as the educational level increases so will the level of awareness and the labour force of the future will be a more demanding one, will be less inclined to accept the status quo and will have different needs. Where many needs now still centre on the basic needs for food, shelter and safety, more and more workers will expect satisfaction of needs that will focus on chances for job advancement, job security and job challenge.

3.2 PRODUCTION FIGURES FOR SOME TECHNICAL OCCUPATIONS

Economic growth depends, among other things, on an adequate supply of technically trained people. The next set of figures gives an indication of the supply trends for engineers, technicians and artisans. To a large extent the level of economic activity determines the demand in these occupations and the demand will also fluctuate with the economic cycle. If the long-term target growth rate is taken as a yardstick, the growth rate in demand for these occupations will be much higher than the average rate of growth.

Estimates of the differences in the annual growth rate in demand are shown below for the period 1978-1987:

* Average rate in demand for labour	2,7 %
* Engineers	4,7 %
* Technicians	4,0 %
* Artisans and apprentices	2,3 %

As the production rates are usually below the supply rates it can be expected that technical manpower will remain in short supply and that this shortage may even have a dampening effect on economic growth.

The figures indicating enrolment show a dramatic drop in the number of civil engineering graduates: this was preceded by a sharp drop in student enrolment in this field noticeable from 1973. In contrast to previous years, this drop has resulted in only a trickle of civil engineering graduates now coming onto the market. As the infrastructure of the RSA is not nearly as developed as that of other Western countries it can be expected that the proportion of civil engineers in the engineering pool will have to be relatively high. Figure 3 shows the graduation trends in the engineering field. There has been a steady increase in the total number of graduates, with electrical (which includes electronic) engineers leading the field.

The drop in enrolments in the civil engineering field will result in a serious shortage of civil engineers. This again, if past experience is any guideline, will lead to an inflationary wage spiral - not only in the civil engineering field. Once a wage structure has been generally accepted it is very difficult to change it: any shift in the structure, even when based on market forces, causes cries of outrage from those left behind.

In many occupations where demand is strongly influenced by the level of economic activity and where there is a relatively long training period (e.g. engineers), demand and supply are very often out of phase because students react to market forces and the bush telegraph and employers tend to curtail bursaries or training opportunities during

recessionary periods. Employers who can afford to do so, should regard their training schemes as a long-term investment.

As far as technicians are concerned, it is very difficult to make any forecast because technicians with Technikon diplomas and certificates form only a small part of the technician corps. Figure 4 does show, however, that the annual growth rate for both diplomas and certificates awarded for the period 1976-1980 (2,0 % and 8,1 % respectively) is higher than that of first degrees in engineering (0,6 %).

With the rise in the educational level of the labour force the training of artisans can be increased rapidly. It is the attitudes of people that provide a stumbling-block in this regard, not a lack on the supply side. Table 4 shows there was a drop in the number of indentured apprentices across the board in 1983 when compared with 1982. The number of Black apprentices has increased substantially since the amendment of the training act.

4 STRUCTURAL CHANGES IN MIDDLE-LEVEL MANPOWER (MLM)

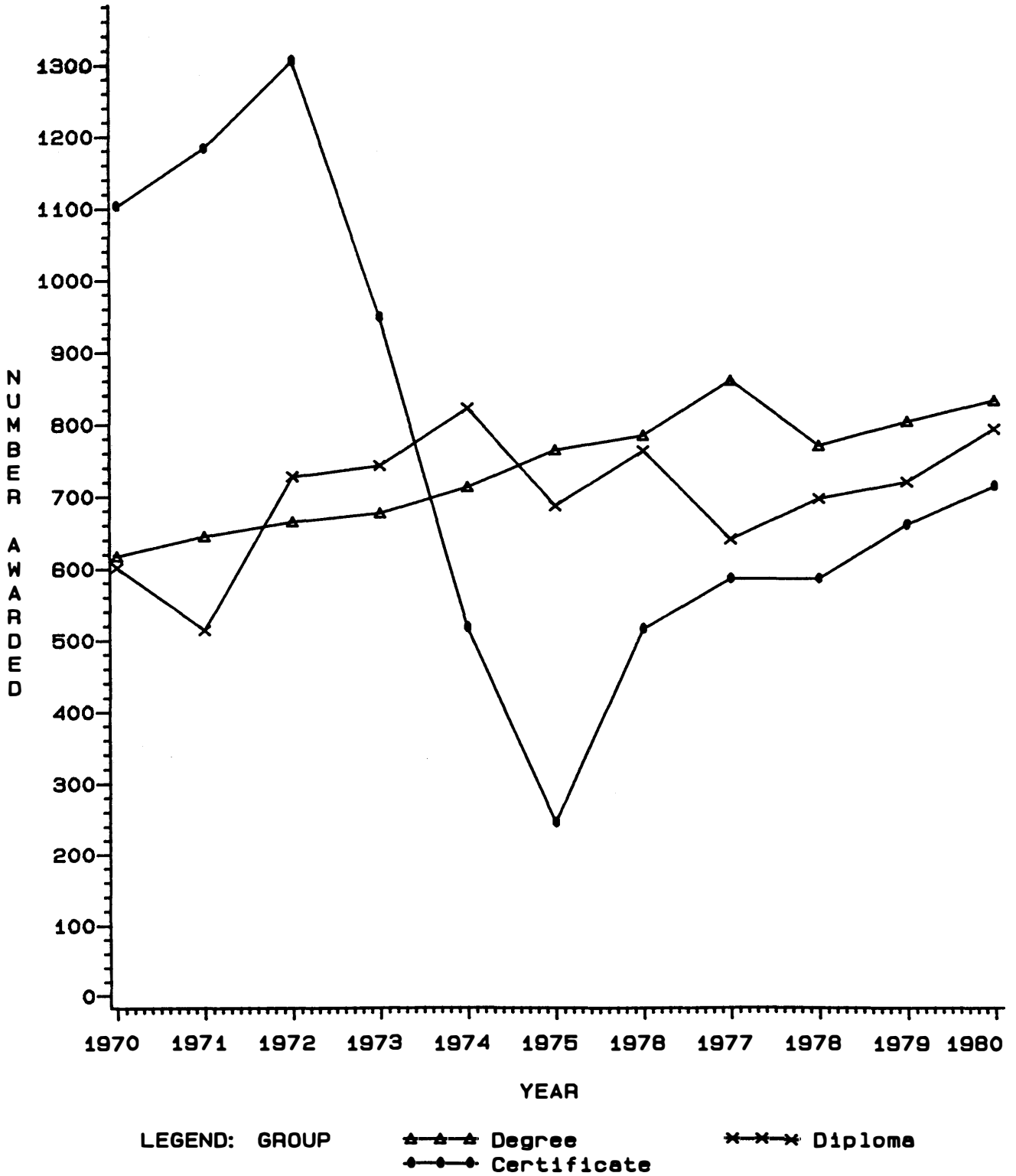
Much has been said and written about high-level manpower: the professions, the managers etc., but the very important changes that have occurred in the ranks of clerical and salesworkers as well as foremen and supervisors have gone largely unnoticed. These groups play a very important role in the production process and the changes have implications for manpower planning in nearly every organization. Figures 5 to 7 illustrate the structural changes that occurred during the period 1965-1981 and that will occur in terms of the projections to 1987.

4.1 GENERAL TRENDS

The population group and sex structures have changed dramatically. White participation in MLM dropped from 82 % in 1965 to 66 % in 1981. The participation of women, and this goes for all the population groups, has risen dramatically.

FIGURE 4

NUMBER OF FIRST UNIVERSITY DEGREES IN ENGINEERING AND TECHNICAL DIPLOMAS & CERTIFICATES AWARDED AT TECHNIKONS



Source: Institute for Educational Research, HSRC
and SANSO-208 Part I and SANSO-209 Part II

TABLE 4
NEW INDENTURED APPRENTICES

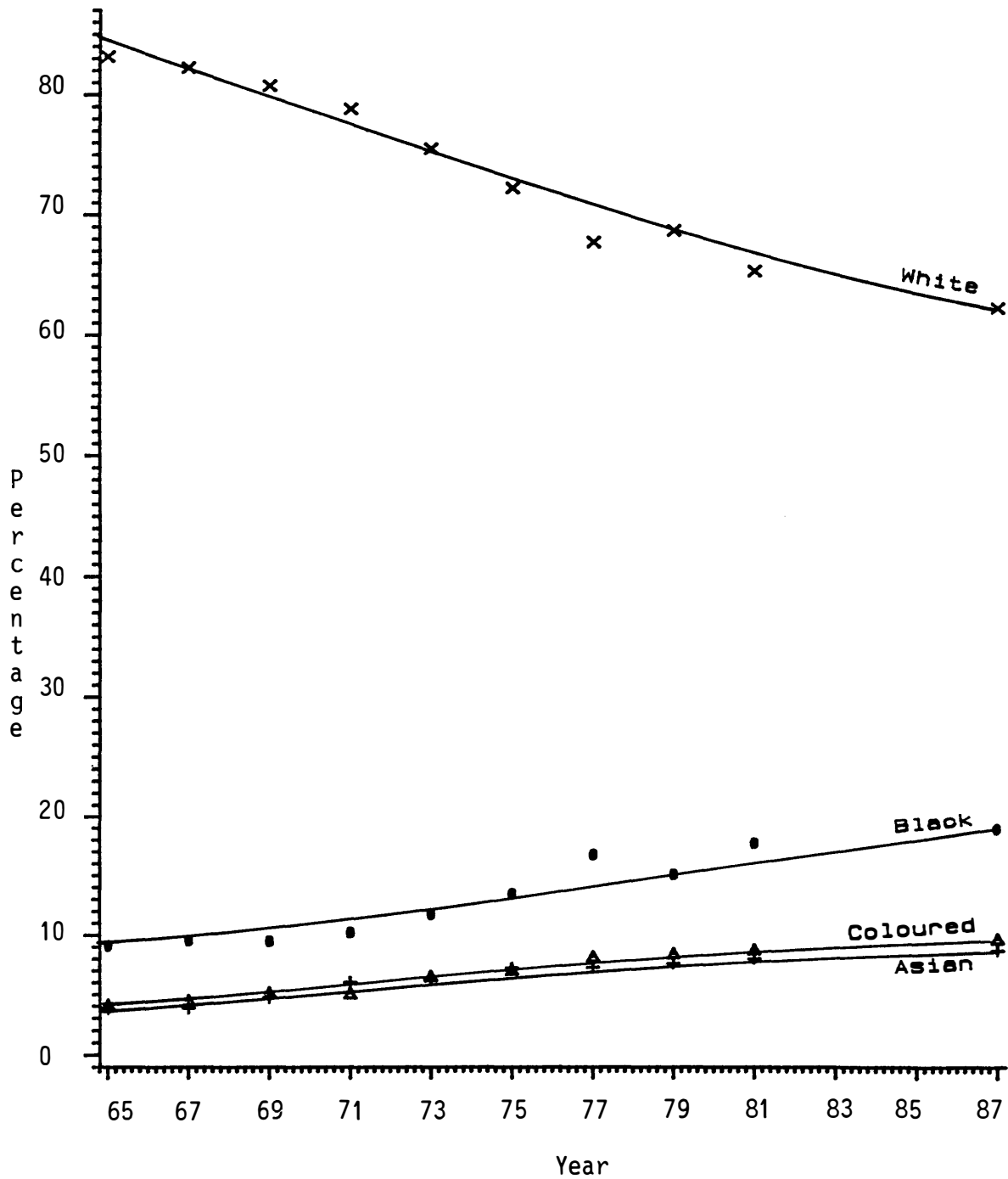
	Trade	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	Annual * Growth Rate
A S I A N	Metal & Eng.	14	15	16	17	17	18	18	102	118	74	168	226	348	161	30,3
	Electrical	15	17	18	21	21	26	24	18	32	41	83	124	154	99	19,4
	Motor	100	103	49	114	91	82	98	66	60	49	82	130	169	121	2,2
	Building	393	437	429	322	373	306	266	50	39	46	99	110	143	94	-14,2
	Other	130	101	75	154	78	55	60	20	22	24	39	55	64	32	-9,5
	TOTAL	652	673	587	628	580	487	466	256	271	234	471	645	878	507	-1,8
B L A C K	Metal & Eng.	-	-	-	-	-	-	-	-	-	-	40	229	349	272	51,1
	Electrical	-	-	-	-	-	-	-	-	-	-	7	68	112	124	96,7
	Motor	-	-	-	-	-	-	-	-	-	-	20	62	83	106	61,7
	Building	-	-	-	-	-	-	-	-	-	-	14	117	170	139	55,8
	Other	-	-	-	-	-	-	-	-	-	-	1	19	27	15	42,2
	TOTAL	-	-	-	-	-	-	-	-	-	-	82	495	741	656	58,5
C O L O U R E D	Metal & Eng.	118	124	139	140	145	154	154	257	183	281	452	523	804	434	14,6
	Electrical	36	41	42	50	50	60	57	64	41	62	86	107	144	98	9,1
	Motor	144	148	70	164	131	117	141	183	146	134	186	231	359	245	6,7
	Building	1032	1148	1128	845	980	804	699	211	119	238	477	476	636	508	-8,7
	Other	355	284	224	388	217	164	173	148	103	124	207	257	275	169	-3,8
	TOTAL	1685	1745	1603	1587	1523	1299	1224	863	592	839	1408	1594	2218	1454	-1,3
W H I T E	Metal & Eng.	3347	3506	3935	3969	4090	4359	4353	4381	3453	3565	4318	4673	5121	4205	1,7
	Electrical	1330	1523	1567	1870	1846	2233	2119	2190	1513	2296	1979	2078	2515	2484	3,7
	Motor	1847	1892	894	2100	1675	1501	1810	1889	1153	1196	1069	1296	1625	1691	-1,4
	Building	771	857	842	631	732	601	522	776	508	401	529	612	660	654	-2,7
	Other	1226	1114	1034	947	805	794	780	865	755	755	659	671	573	670	-4,4
	TOTAL	8521	8892	8272	9517	9148	9488	9584	10101	7382	8117	8566	9232	10591	9791	0,6
T O T A L	Metal & Eng.	3479	3645	4090	4126	4252	4531	4525	4740	3754	3920	4978	5651	6622	5072	3,3
	Electrical	1381	1581	1627	1941	1917	2319	2200	2272	1586	2399	2155	2377	2925	2805	4,5
	Motor	2091	2143	1013	2378	1897	1700	2049	2138	1359	1379	1357	1719	2236	2163	-0,1
	Building	2196	2442	2399	1798	2085	1711	1487	1037	666	685	1105	1315	1609	1395	-6,0
	Other	1711	1499	1333	1489	1100	1013	1013	1033	880	807	917	904	1036	973	-4,4
	TOTAL	10858	11310	10462	11732	11251	11274	11274	11220	8245	9190	10527	11966	14428	12408	0,6

* The compounded annual growth rate is calculated after fitting an exponential curve to the time series for the Asian, Coloured and White population groups and a linear curve for the Blacks.

Source : Department of Manpower

FIGURE 5(a)

STRUCTURAL CHANGES* IN MID-LEVEL MANPOWER DURING 1965-1987
Clerical workers



Source: Manpower Surveys, Department of Manpower

*Data for 1965, 1967 ... to 1981 projected to 1987

FIGURE 5(b)

POPULATION AND SEX DISTRIBUTION OF CLERICAL
WORKERS IN 1965 AND 1981

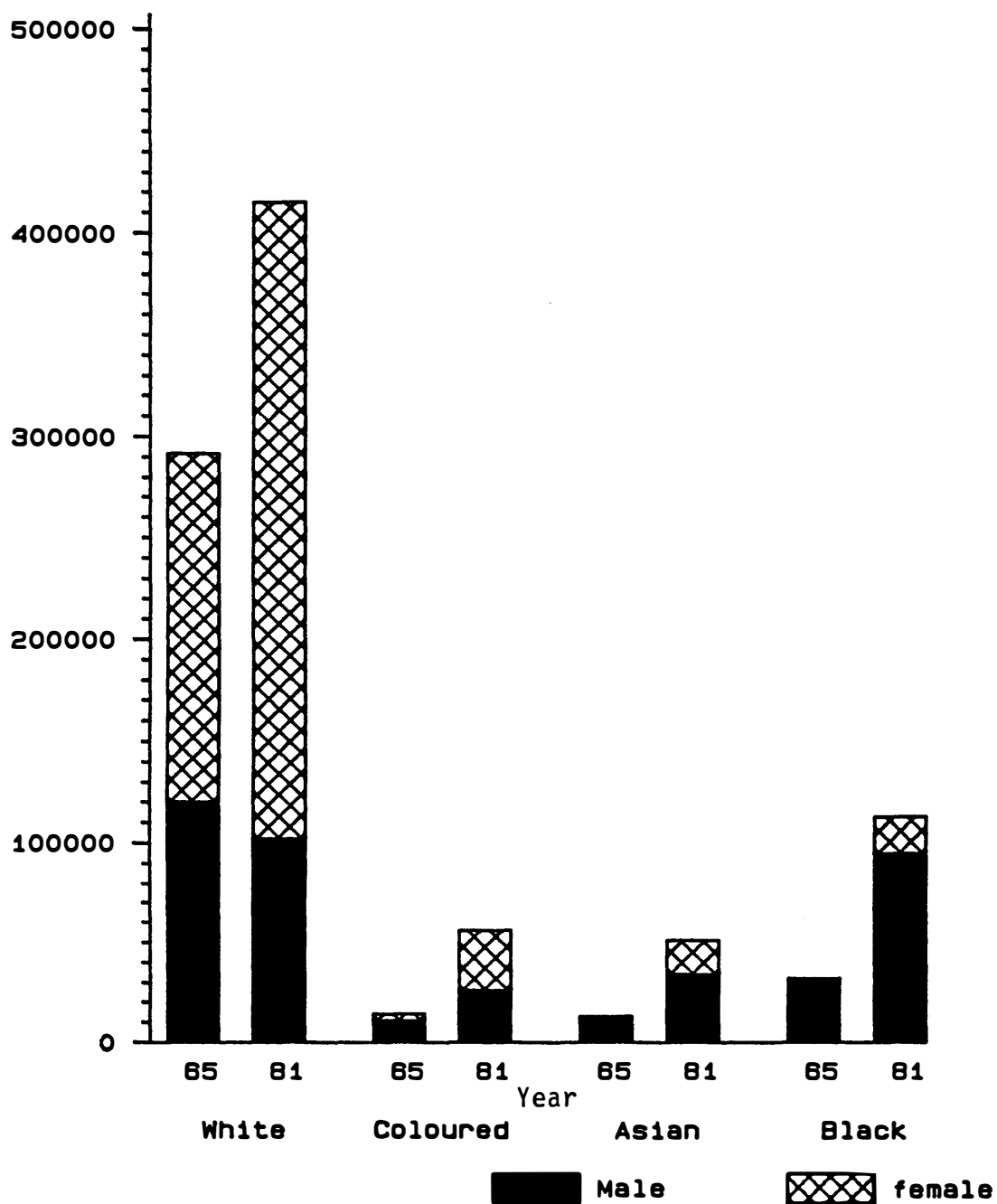


FIGURE 6(a)

STRUCTURAL CHANGES IN MID-LEVEL MANPOWER DURING 1965-1987
Salesworkers

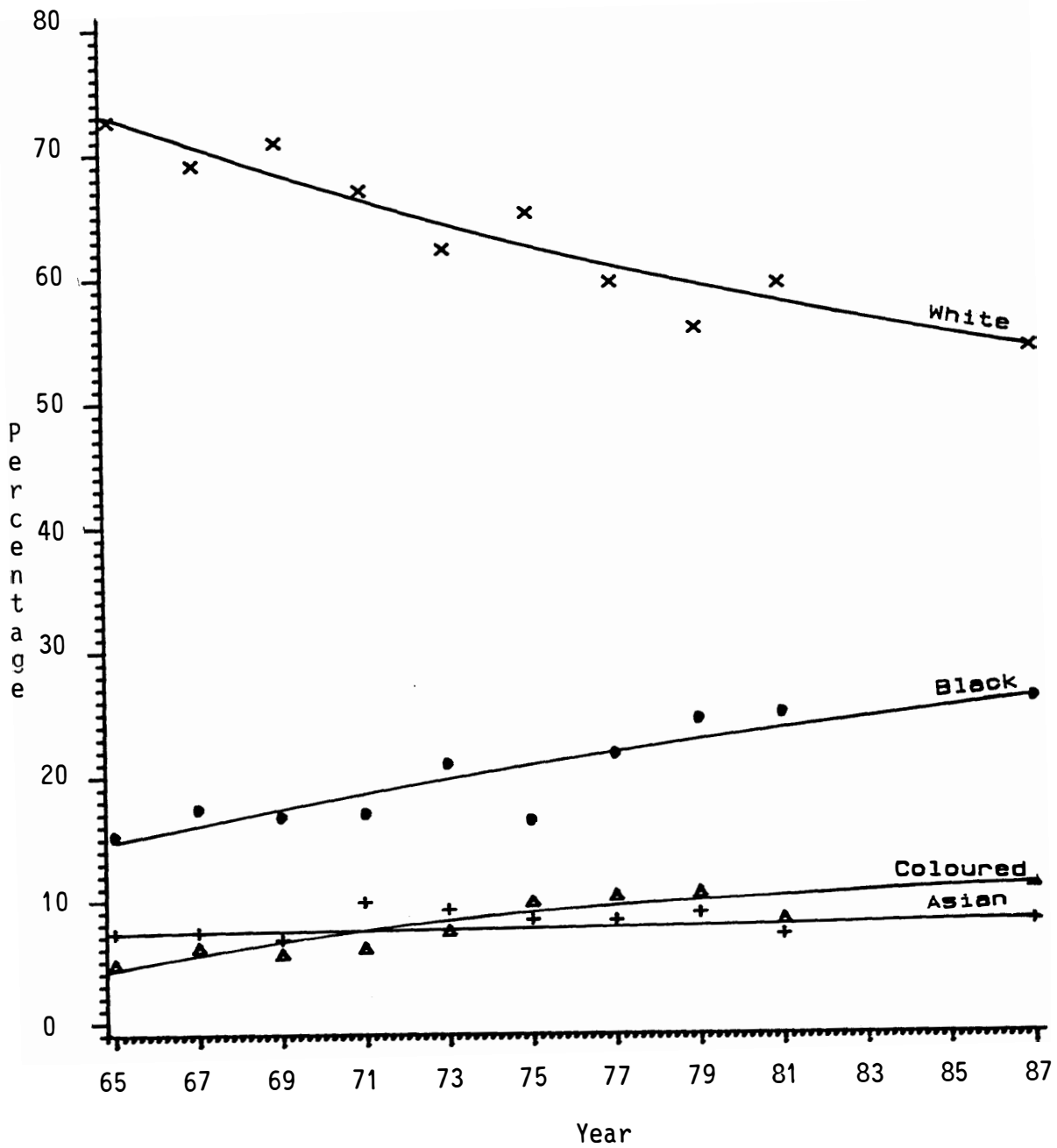


FIGURE 6(b)

POPULATION AND SEX DISTRIBUTION OF SALESWORKERS IN 1965 AND 1981

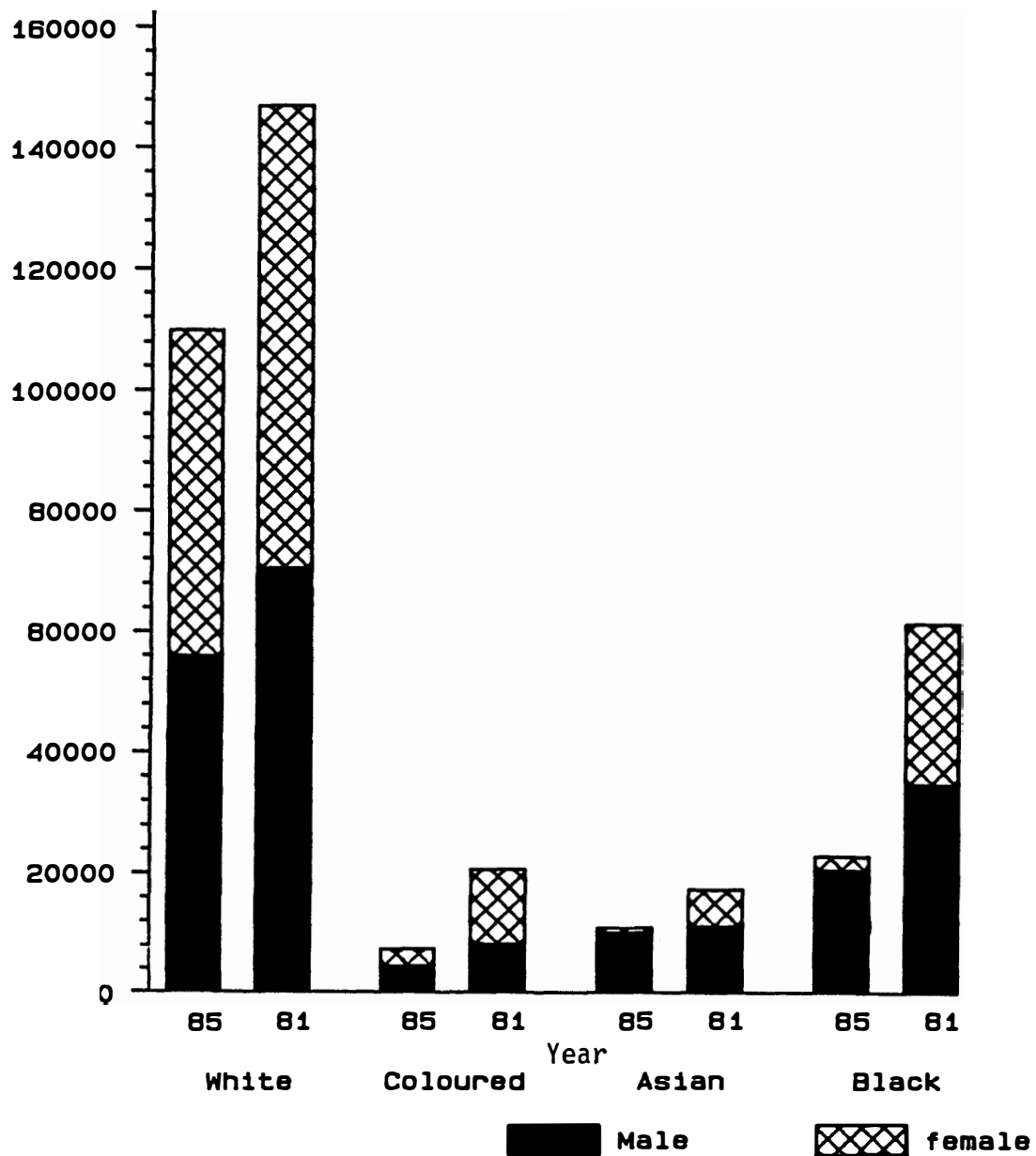


FIGURE 7(a)

STRUCTURAL CHANGES IN MID-LEVEL MANPOWER DURING 1965-1987
Supervisors

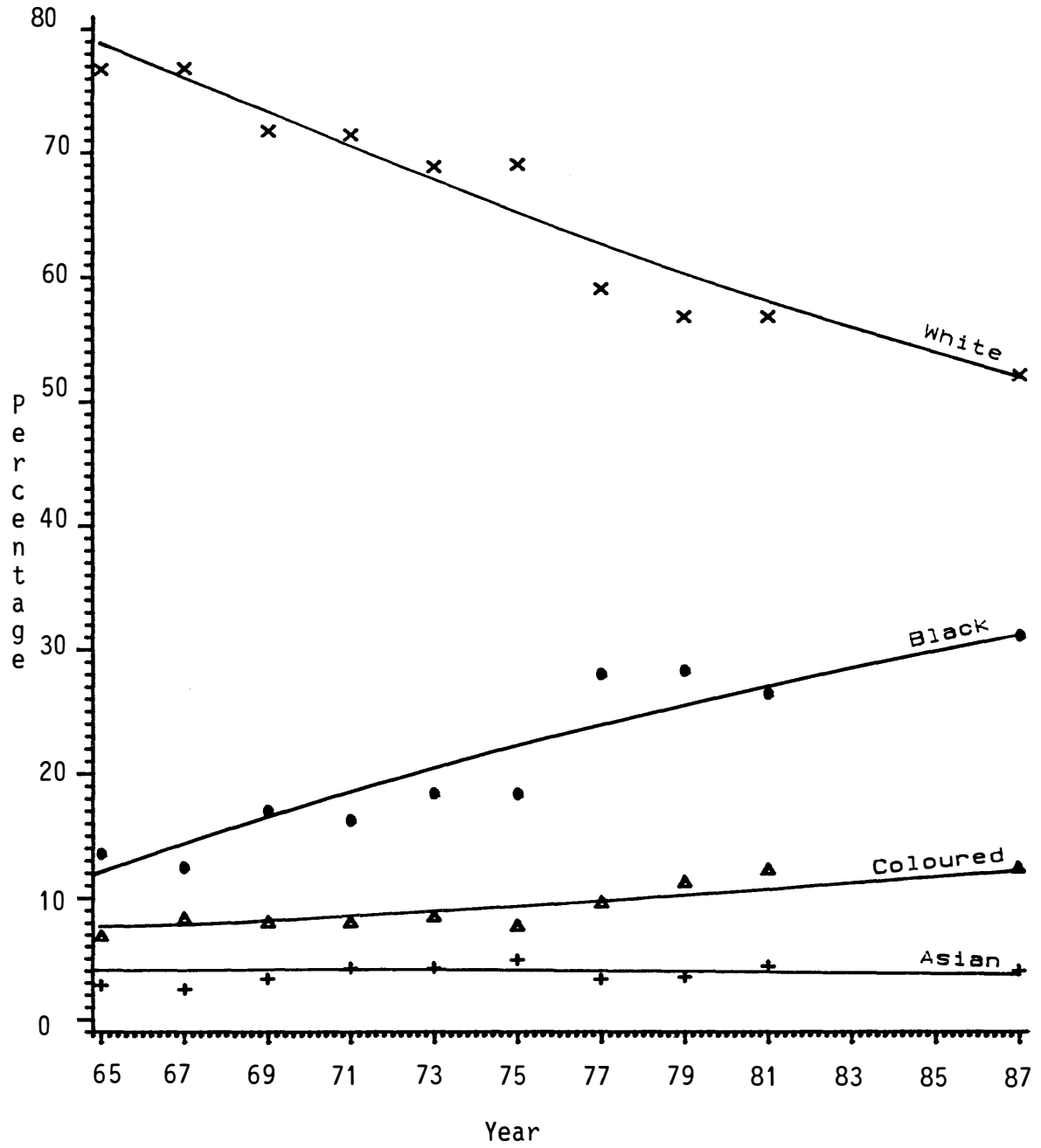
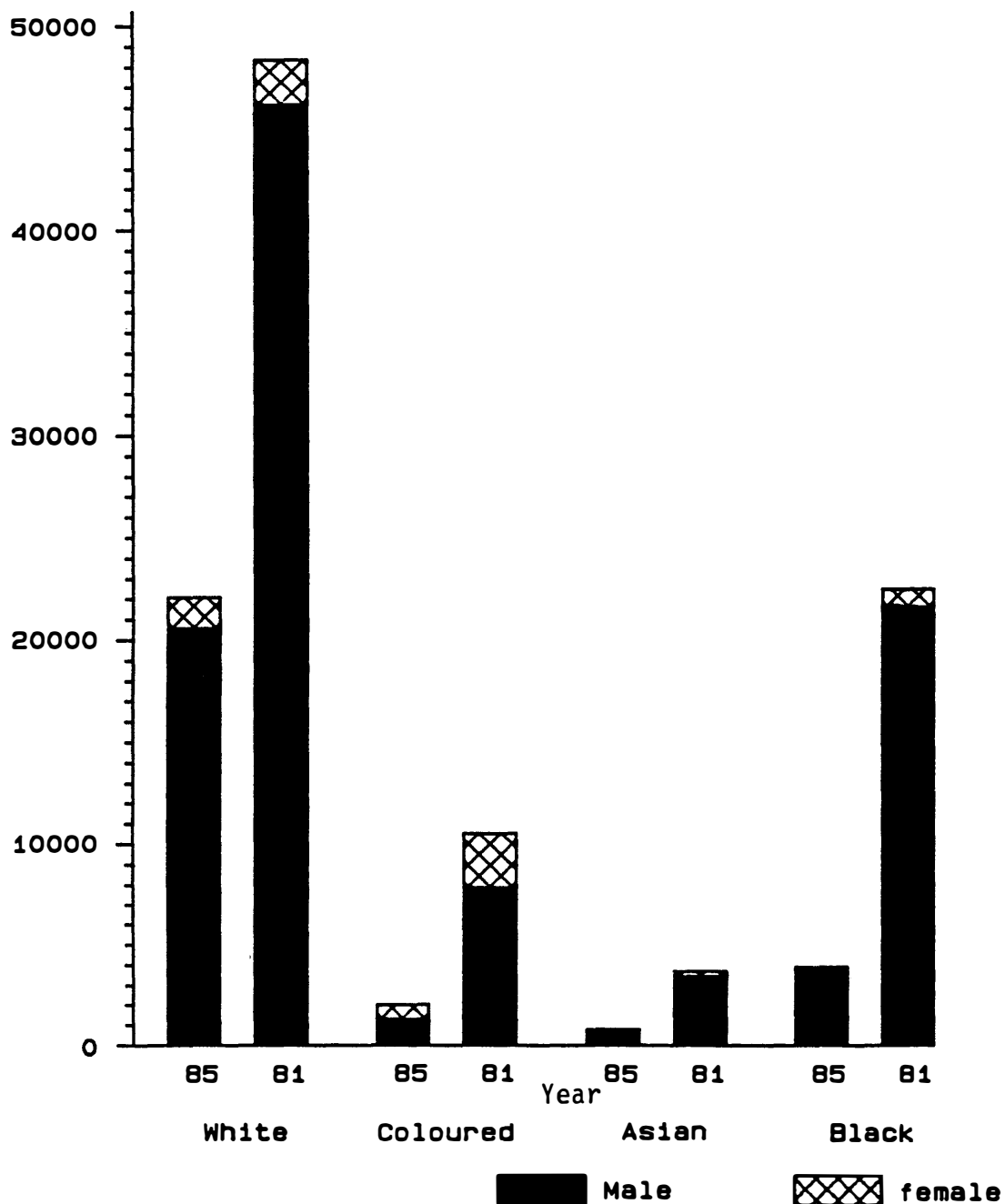


FIGURE 7(b)

POPULATION AND SEX DISTRIBUTION OF SUPERVISORS IN 1965 AND 1981



4.2 CLERICAL WORKERS

The percentage of White males in this group has dropped by more than half, although the percentage of White women has remained fairly constant. The largest increases are to be found in Asian women and Black men. These changes have important implications for those organizations that used to draw on the clerical pool for an important component of their middle-level management. The great majority of these managers in the past were White males and this source is shrinking.

4.3 SALESWORKERS

The increased participation of Asian, Black and Coloured women is mainly responsible for the shift towards women in this category.

4.4 FOREMEN AND SUPERVISORS

The general trend repeats itself here. Black men are an important source of first-line supervisors.

4.5 VACANCY RATES

Table 5 gives the vacancy rates (percentage of jobs vacant) for the different MLM groups.

TABLE 5

VACANCY RATE FOR MLM GROUPS, 1981

Clerical workers	2,8 %
Salesworkers	1,9 %
Foremen and supervisors	2,6 %

A vacancy rate of 3 % is usually regarded as representing a no shortage situation. As far as MLM is concerned it seems as if the market can look after itself and that the problem will rather be one of absorbing the increasing supply.

5 THE PAY SCENE

5.1 WAGE INCREASES IN SELECTED OCCUPATIONS

The Manpower Monitor System gives some indication of wage increases in some of the occupations that can be regarded as of key importance in economic growth. The information is given for 1981-82 and 1982-83. In both instances the increases in wages refer to the same group of employees who took part during both years. As not all the companies took part in both survey years the median wage for 1982 differs slightly (Table 6).

In general it can be said that the wage increases observed for the period 1982-1983 are much lower than those that occurred in the previous year. There are some exceptions and the most noteworthy is the increase of 16,4 % for selected natural science occupations. The still relatively high increase rates for certain apprentices is partly due to the fact that some apprentices became fully fledged artisans during the year in question, and this was accompanied by a substantial wage increase.

Figure 8 shows the median wage distribution over age for 1983. With the exception of artisans the normal wage by age curve, i.e. a sharp rise in wages up to about 45 years followed by a levelling off, can be observed from this MMS data. Artisans have a very flat distribution but when they get promotion they usually move to supervisory levels. Artisan wages in the metal and engineering trades are also appreciably higher than in other trades.

5.2 TRENDS IN GRADUATE WAGES

Figure 9 shows the trend in wages of graduates in real terms (1975 = 100) as calculated from the Institute for Manpower Research's regular surveys. The shaded bands indicate recessionary periods. Perhaps the most interesting feature is that the sharp dip noticeable for the period 1975-1979 has not yet been repeated. From the MMS data however it would appear as if another decrease can be expected. The progressive nature of income tax has eroded most of the increase since 1979.

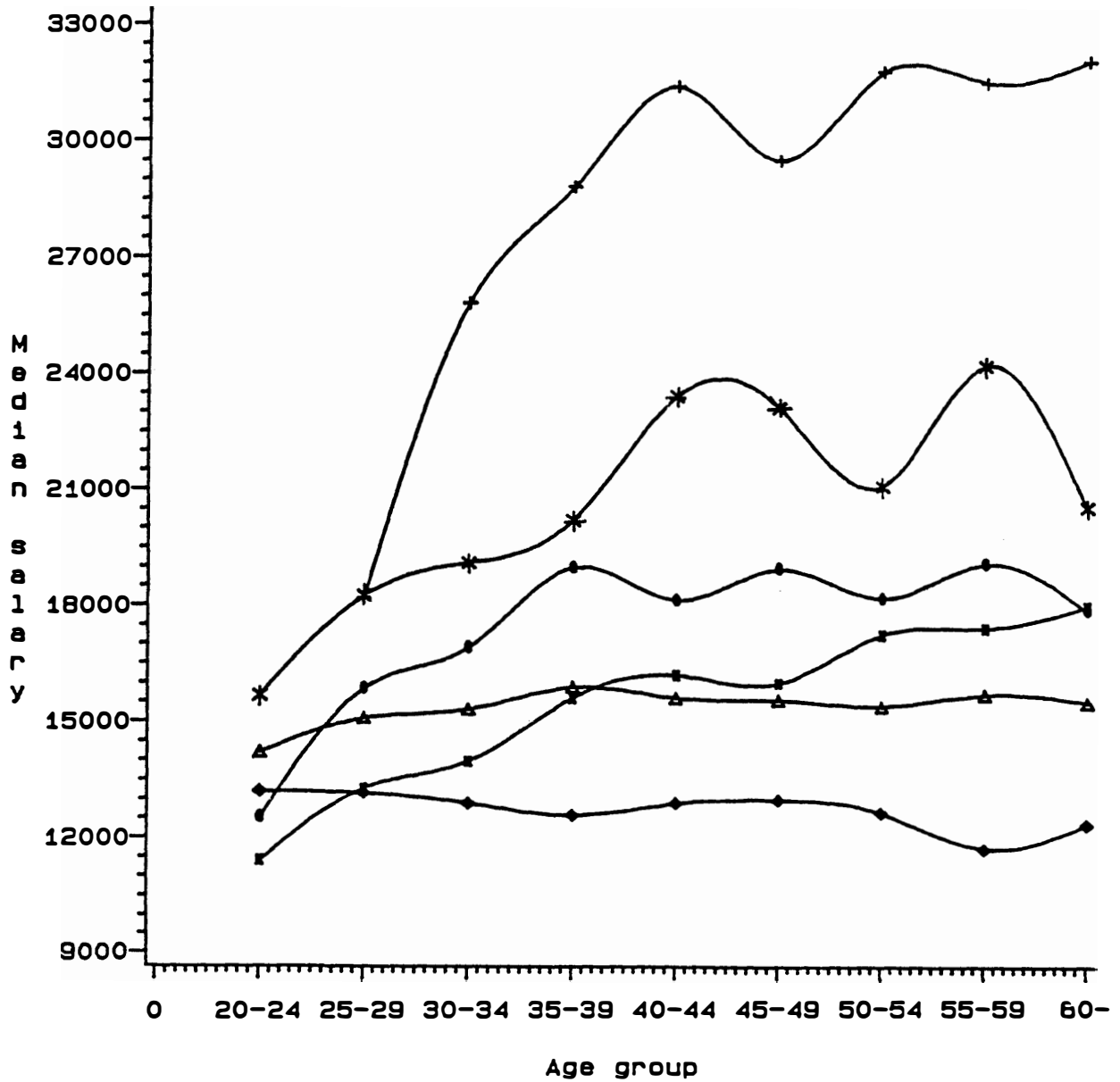
TABLE 6

INCREASE IN MEDIAN WAGES (MMS DATA)

Occupation	N	1981	1982	%	N	1982	1983	%
Registerable engineers	65	23095	26422	14,4	94	26223	29769	13,5
Engineering technologists	71	13440	17694	31,7	116	18600	20400	9,7
Selected natural scientists	41	20634	22613	9,6	35	22673	26389	16,4
Qualified engineering technicians	162	13116	16031	22,2	338	15948	17598	10,4
Learner engineering technicians	6	8397	12840	52,9	64	6946	8340	20,1
Selected technicians in science & applied science	17	11340	12696	12,0	24	12630	13230	4,8
Artisans: Metal and engineering	348	10640	12744	19,8	812	13740	15180	10,5
Electrical trades	101	10588	12519	18,2	151	13193	14780	12,0
Motor trades	74	8533	11086	29,9	125	11916	12768	7,2
Building trades	71	9940	12247	23,2	78	12247	13620	11,2
Apprentices: Metal and engineering	128	4401	5605	27,4	344	4896	6000	22,6
Electrical trades	55	4546	5184	14,0	71	4941	5667	14,7
Motor trades	33	4752	6488	36,5	73	4797	6332	32,0
Supervisory occupations	773	9612	12348	28,5	997	12348	13164	6,6
Computer occupations	66	13195	17760	34,6	106	15167	17344	14,4
TOTAL	2011				3428			

FIGURE 8

MEDIAN WAGES OF SELECTED OCCUPATIONS, 1983 (MMS DATA)



- +—+—+ Registerable engineer
- *—*—* Engineering technologist
- Qualified engineering technician
- ▲—▲—▲ Artisan: metal and engineering
- ◆—◆—◆ Artisan: other
- Supervisor/foreman

FIGURE 9

CHANGES IN MEDIAN WAGES/INCOMES OF GRADUATE MEN (BEFORE INCOME TAX)
FOR THE PERIOD 1973-1984, CALCULATED AT 1975 PRICES

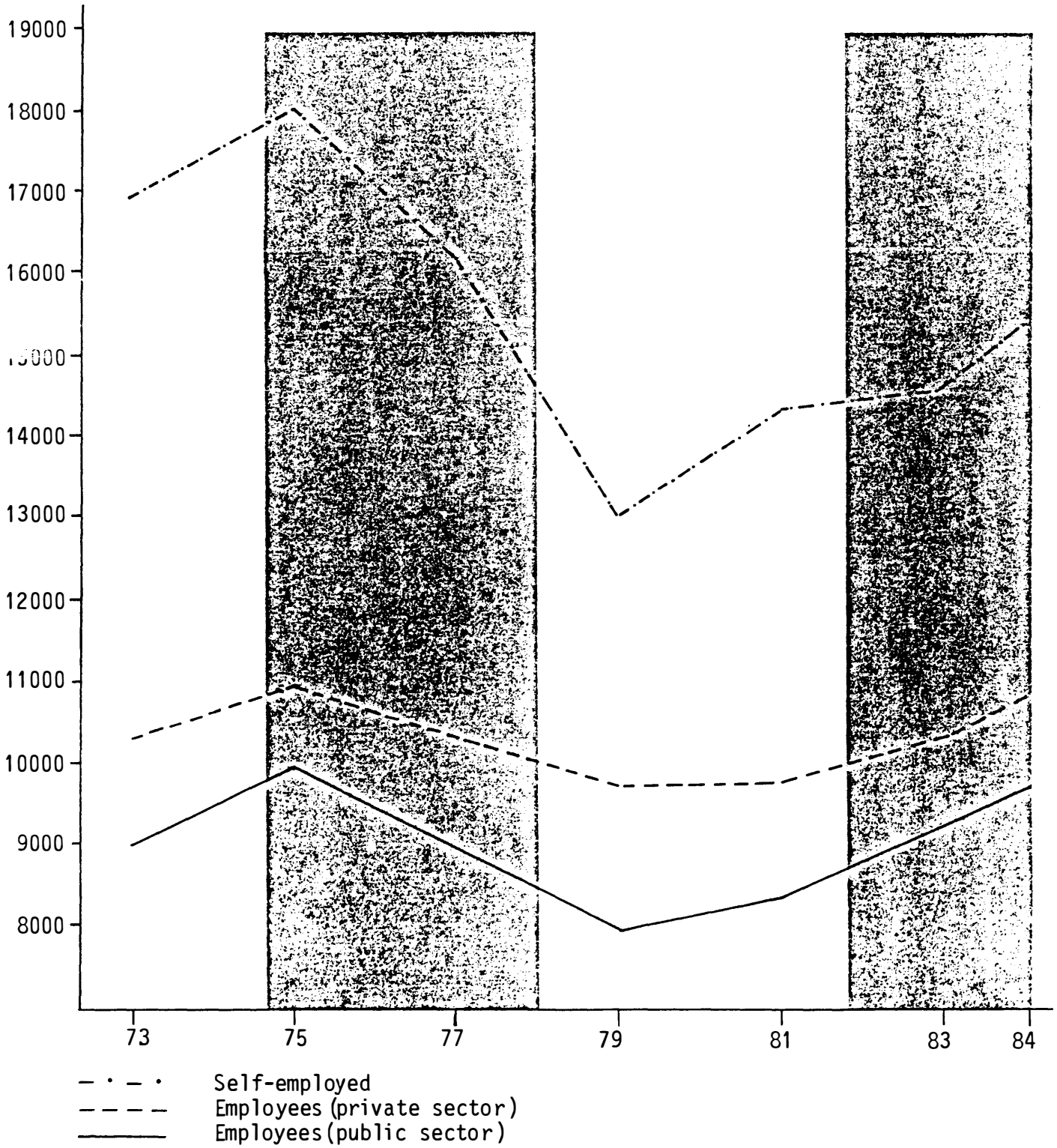


Figure 10 shows the percentage decrease or increase in the salaries of employees in the private and public sectors for the period March 1973 to March 1984 for graduates in various fields of study. The shaded areas each indicate an increase of 5 % in real salaries, again calculated at 1975 prices. The public and private sectors have very different patterns but as Table 7 shows, the gaps between these two sectors have been decreased in most fields by the shifts. The notable exceptions are in the fields of engineering and applied social sciences. In the case of the latter public sector salaries have outstripped those of the private sector. Many of the graduates in the applied social science field are ministers of religion.

6 LABOUR TURNOVER

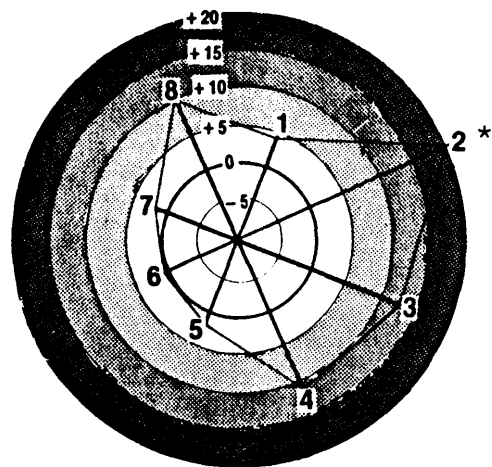
Numerous factors influence labour turnover. The rate of labour turnover can be calculated in various ways, but it usually has two components: the avoidable and unavoidable such as death and retirement. Staff losses are costly not only because of direct expenses (recruitment, training, etc.) but also because new workers are not immediately fully productive. Table 8 indicates the average loss rate for the companies in the 1981-1982 and 1982-1983 MMS surveys.

The overall loss rate has decreased but this is mainly due to a drop in the rates for both artisans and apprentices in the metal and engineering and electrical fields. Also in line with the drop in wage increases is the fact that redundancies are a factor in the loss rate and even if the numbers are still very small, such losses are more than the loss due to normal retirement and death. Interesting is the fact that these redundancies, in the companies taking part in the MMS, have occurred more in the professional groups where one would expect a greater measure of job security. A factor playing an important role here is the higher resignation rates among artisans, which would make forced reductions less of a necessity. The total labour force in the survey group dropped only marginally (0,5 %). Hiring of new employees for the most part occurred in the 19 to 29-year-old age group.

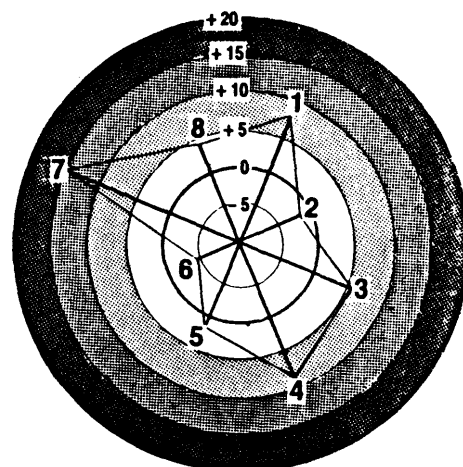
FIGURE 10

PERCENTAGE INCREASE OR DECREASE IN MEDIAN SALARIES (BEFORE INCOME TAX)
FOR GRADUATE MEN IN VARIOUS FIELDS OF STUDY DURING THE PERIOD 1973-1984
(1975 PRICES)

Public sector



Private sector



The numbers* in the figures correspond to the numbers of fields of study in Table 7.

TABLE 7

MEDIAN SALARIES OF GRADUATE MEN IN VARIOUS FIELDS OF STUDY, 1973 AND 1984

No.	Field of study	Median salary				Private sector advantage	
		Private sector		Public sector		(%)	
		1973	1984	1973	1984	1973	1984
1.	Engineering	9134	34450	8324	30445	9,7	13,2
2.	Medicine, dentistry and veterinary science	11660	40075	9100	38360	28,1	4,5
3.	Applied natural sciences	8000	29603	6817	26985	17,4	9,7
4.	Natural science	8100	30880	6860	26880	18,1	14,9
5.	Law	7000	25000	7760	27693	- 9,7	- 9,7
6.	Applied social sciences	5500	18480	6830	24055	-19,5	-23,2
7.	Social science	5820	23400	6569	24563	-11,4	- 4,7
8.	Commerce and administration	9000	34450	7160	28800	25,7	19,6

TABLE 8

MMS LABOUR LOSS RATES, JULY 1981-JUNE 1982 AND JULY 1982-JUNE 1983

Occupation	N* 1981-1982		N 1982-1983		% of loss due to red. ret. ** 1982-1983	
Registerable engineers	133	5,3	201	8,5	17,7	0,0
Engineering technologists	101	10,9	128	10,1	30,8	7,7
Selected natural scientists	57	3,5	73	8,3		
Qualified engineering technicians	367	9,5	558	11,1	12,9	
Learner engineering technicians	103	12,6	161	5,6	22,2	
Science technicians	97	22,6	43	14,1		
Artisans: Metal and engineering	1061	31,5	1700	16,5	7,8	1,1
Electrical	241	31,5	355	20,0		
Motor	123	32,4	232	42,7		
Building	158	16,5	176	9,1	6,2	
Apprentices: Metal and engineering	551	12,0	877	6,3	7,3	
Electrical	137	10,9	110	3,7		
Motor	49	4,1	114	11,4		
Supervisory occupations	1050	9,3	1378	11,6	1,3	2,5
Computer occupations	108	24,9	155	22,0		
TOTAL	4336	17,9	6261	13,5	5,4	1,1

* Average staff complement **red.=redundancy ret.=retirement, death

7 CONCLUDING REMARKS

This report gives an overview of some aspects of the manpower situation as selected from our research. This report has been sent to all companies taking part in our MMS and we should like to extend an open invitation to them to write or phone if there are some fields in which those who have to do the manpower planning, feel that there is a real scarcity of information necessary for effective planning. Such feedback would give direction to the research and would be appreciated.



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NIPR

P.O. Box 32410 Braamfontein 2017
Republic of South Africa
Telegrams NAVORSPERS
Tel. (011) 33-94451
Telex 4-25459

Regional offices

Western Cape, Private Bag, 40, Parow 7500
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Streekkantore

Wes-Kaap, Privaatsak 40, Parow 7500
Tel. (021) 92-1026

Natal, Posbus 508, Durban 4000
Tel. (031) 31-6926

NIPN Natal, Posbus 17001, Congella 4013
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