
# the profitability of twelve professions



human sciences research council


SOUTH AFRICAN HUMAN SCIENCES RESEARCH COUNCIL

# THE PROFITABILITY OF TWELVE PROFESSIONS

F. BOSHOFF, B.Comm.(Hons.)

INSTITUTE FOR MANPOWER RESEARCH
DIRECTOR: W. VERHOEF

PRETORIA
1972
Report no. MM-35



R2,50

This publication and all other HSRC publications which are mentioned at the end of this publication are obtainable from

**VAN SCHAIK'S BOOKSTORE,**

**P.O. BOX 724,**

**PRETORIA.**

ISBN 0 86965 085 8

PREFACE

Much has been heard in the recent past of the profitabili= ty of a number of professions. It has been argued, for instance, that if the administration of estates were not reserved for attorneys, this profession would be doomed. It has also been asserted that the profession of the general medical practitioner, particularly in rural areas, is not remunerative, while quantity surveyors were granted permission in 1972 to raise their fees.

An attempt has been made in this study to determine, on a scientific basis, the absolute and relative profitability of twelve professions. I trust that this information will be of value to persons pursuing the professions as well as to the po= licy makers.

I wish to thank the officials of the office of the Secre= tary of Inland Revenue, the South African Reserve Bank and the Universities of Pretoria and Potchefstroom as well as the persons pursuing the twelve professions for their contributions. With= out their co-operation, the publication of this report would have been impossible.

VICE-PRESIDENT

CONTENTS

TABLES

FIGURES

## OPSOMMING

MM 35

Die rendabiliteit van twaalf professies

Die verslag handel oor die absolute en relatiewe rendabiliteit van die ondergenoemde twaalf professies:

| | | | |
|---|---|---|---|
| 1 | Ingenieur | 7 | Mediese spesialis |
| 2 | Argitek | 8 | Tandarts |
| 3 | Bourekenaar | 9 | Apteker |
| 4 | Landmeter | 10 | Prokureur |
| 5 | Veearts | 11 | Advokaat |
| 6 | Algemene mediese praktisyn | 12 | Ouditeur |

Die rendabiliteit van elke professie is afsonderlik vir selfgeëmplojeerdes en werknemers op die volgende manier bereken: Die inkomstes wat 'n denkbeeldige manlike beoefenaar van elke professie na verwagting oor sy hele professionele loopbaan sal verdien, is aan die einde van sy sewentiende lewensjaar teen ses persent per jaar volgens die kontantwaardemetode verdiskonteer. Die invloed van uitgawes soos studiekoste, verbeurde inkomste en inkomstebelasting is ook in berekening gebring.

Die berekenings is gebaseer op 'n inkomste/loonopname wat op 1 Maart 1971 by 5116 beoefenaars van die twaalf professies gemaak is.

SUMMARY

MM 35

The profitability of twelve professions

The report concerns the absolute and relative profitability of the following twelve professions:

| | | | |
|---|---|---|---|
| 1 | Engineer | 7 | Medical specialist |
| 2 | Architect | 8 | Dentist |
| 3 | Quantity surveyor | 9 | Pharmacist |
| 4 | Surveyor | 10 | Attorney |
| 5 | Veterinary surgeon | 11 | Advocate |
| 6 | General medical practitioner | 12 | Auditor |

The profitability of each profession has been calculated separately for self-employed and employed workers. The incomes which will probably accrue to a hypothetical male pursuer of each profession during his entire professional career, was discounted, according to the cash value method at six per cent per annum at the end of his seventeenth year of life. The influence of expenditures such as study fees, forfeited income and income tax was also taken into consideration.

The calculations are based on an income/wage survey which was made of 5116 pursuers of the twelve professions on March 1, 1971.

## 1 INTRODUCTION AND AIM

The aim of this investigation is to determine the absolute and relative profitability of twelve professions in the Republic of South Africa and South-West Africa for both employed and self-employed workers.

The origin of the absolute and relative profitability of a profession lies either in the supply and demand situation in the labour market concerned or in factors (usually judicial or institutional) which might hamper the perfect functioning of the labour market. These are all matters in which the planner, particularly the manpower planner, may have an interest since they can have a restrictive influence on the attainment of the maximum level of prosperity in the national economy. The expected future profitability of a profession is also, for obvious reasons, of the greatest importance for the prospective followers of the professions and for their guidance officers.

The hope is therefore expressed that the results of this study will be of value to both the planner and the guidance officer in the execution of their daily task, as well as to the prospective followers of the professions when exercising their choice.

Since the incomes of self-employed and employed followers of a profession can differ considerably in many cases, in the same way as their duties vary, the profitability of each profession is calculated separately for employees and self-employed persons. The two groups will, however, not be compared with each other since a self-employed person's net profit also includes a risk premium, an entrepreneurial wage and interest on capital invested in instruments and equipment, while the employee's wage usually simply constitutes remuneration for services rendered. The net profit of a self-employed follower of a profession thus usually consists of the composite remuneration provided by three different production factors, viz labour, capital and entrepreneurship, while the employee's wage represents the return of only one production factor, viz labour.

The twelve professions involved in this investigation are those of:

1 Engineer
2 Architect
3 Quantity surveyor
4 Surveyor
5 Veterinary surgeon
6 General medical practitioner

7 Medical specialist
8 Dentist
9 Pharmacist
10 Attorney
11 Advocate
12 Auditor

It is conceded that there are other professions of which the members can rightfully claim to be included in this investigation. The only reason for the exclusion of such professions is, however, the fact that too few followers of these professions participated in the investigation, with the result that insufficient information on the wages/net profit of the followers of such professions was available to ensure reliable results. Female followers of the twelve professions were excluded from the investigation for precisely the same reason.

It is to be hoped, therefore, that ladies and followers of the professions of town and regional planning and social work will participate in a repetition of this investigation so that they may be included as well.

## 2 ORIGIN OF THE DATA

According to the latest estimate as at 1 March, 1971, there were approximately 124 000 highly qualified Whites in the Republic of South Africa and South-West Africa, of whom 78 125 or 62,9 per cent were registered in the National Register of Natural and Social Scientists. Of this number of registered persons, 66 555 or 85,2 per cent are White persons under the age of 66 years who have not yet retired on pension.

It can thus be estimated, on the strength of the above-mentioned data, that as at 1 March, 1971, there were approximately 105 600 highly qualified Whites under the age of 66 years who had not yet retired on pension in the Republic of South Africa and South-West Africa.

A questionnaire was posted to every second person of the previously mentioned 66 555 highly qualified Whites on 1 March, 1971. (See Appendix A). Particulars were requested on these persons' occupations, capacity in which employed, experience, occupational function, branch of employment, wage and fringe benefits. Altogether 14 291 properly completed and usable questionnaires were returned after six weeks had elapsed. This represents 43,0 per cent of the questionnaires which were despatched and 13,5 per cent of the estimated 105 600 highly qualified Whites who are under the age of 66 years and have not yet retired on pension.

Of the 14 291 highly qualified persons, 12 512 were men, while 5116 of the latter pursued the twelve professions under discussion in this report, 2538 as employees and 2578 as self-employed persons.

In addition to the data obtained by means of the questionnaires, particulars on the age, qualifications, place of residence and sex of the respondents were gleaned from the National Register. This was made possible by originally printing the National Register numbers of the respondents on the questionnaires. In not a single case was it necessary to couple a completed questionnaire with the name and/or address of a person. In order to protect the anonymity of respondents still further, no report is given on any identifiable group.

An analysis of the wage structure of the above-mentioned 14 291 highly qualified persons has alreday been published by the Human Sciences Research Council in Report No. MM 27, entitled "The wage structure of highly qualified White employees as at 1 March, 1971".

## 3 DEFINITION OF CERTAIN CONCEPTS

Not all the data obtained by means of the questionnaire will be used in this report.

The data which have, in fact, been used in the report are related to concepts such as wage, highly qualified and profession. The data in this report are furthermore reported as first quartile, median and third quartile wage and cash values.

The above-mentioned concepts will be briefly defined for the sake of accuracy in the interpretation of the data.

## 3.1 WAGE

As can be seen in the questionnaire (see Appendix A - Question 6), the respondents were requested to supply as wage (salary) merely those amounts which they receive as remuneration for the direct pursuit of their present occupations, while persons owning their own business undertakings or practices (self-employed persons) were asked to state their net profit. Pension, accommodation, bonuses, overtime earnings, allowances, dividend receipts, income derived from rentals, as well as income from other sources such as the wages earned by spouses were not regarded as a wage for the purposes of this report. In this study, the net profits of self-employed persons were put on a par with the gross wages of employees, since these are the respective amounts which are used as the point of departure for calculating a person's taxable income.

The importance of fringe benefits such as pension, accommodation and bonuses as a factor in the determination of the supply of and demand for labour is in no way underestimated by the above-mentioned demarcation of concepts. It is even possible that fringe benefits play a more important role than nominal wages in some labour markets.

However, since it would appear from the completed questionnaires that there is great uncertainty among some workers as to the value of the fringe benefits which they receive and that the amounts which they supplied are, for this reason, not above suspicion in all cases, it was decided not to take the fringe benefits into consideration in this report. However, exclusive attention will be devoted to fringe benefits in a report to be published at a later stage.

## 3.2 HIGHLY QUALIFIED

The concept "highly qualified" pertains to any person in possession of at least a Bachelor's degree or any other qualification which, for the purposes of the National Register of Natural and Social Scientists, is regarded as at least equivalent to a Bachelor's degree.

Since wage levels play such an important part in the investigation, it is obvious that only highly qualified persons who are also economically active could be involved in the investigation. All highly qualified persons who are not economically active, such as pensioners, housewives, full-time students, as well as all persons above the age of 66 years, were consequently not included in the survey group.

## 3.3 PROFESSION

The concept "profession" in this report is used to denote any occupation which may only be pursued or of which the nomenclature may only be used by persons registered with a supervisory council which has been established under an act of the central authority and invested with certain powers.

The supervisory council is established with the specific aim of ensuring that only those persons in possession of stipulated qualifications are registered, as well as of supervising the standard of service and professional conduct of the registered persons.

## 3.4 CASH VALUE

The cash value of a flow of incomes and/or expenditures extending over a number of years or months is the cash amount which, if it were invested at a specific rate of interest (compound interest) at the commencement of the period, would monthly or annually yield an equal flow of incomes and/or expenditures.

## 3.5 MEDIAN (Me) OR SECOND QUARTILE ($Q_2$)

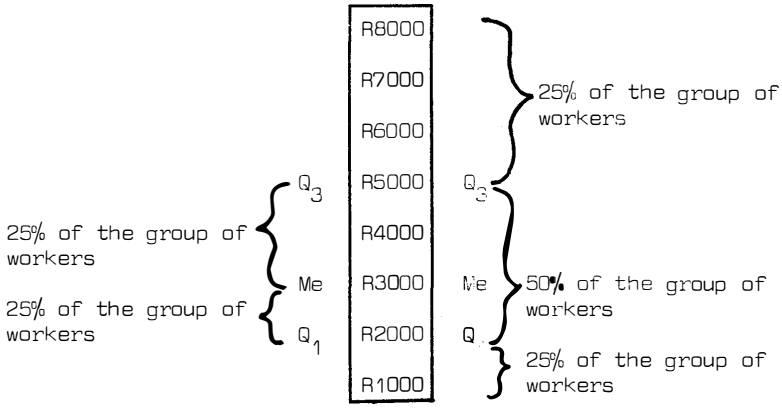
The median (Me) or second quartile ($Q_2$) is a statistical concept indicating an intermediate value of a group of observations. The median wage of a specific group of workers - take, for example, all surveyors in government service - indicates that 50 per cent of them earn more and 50 per cent less than the indicated median wage (see also Figure 3.1).

## 3.6 FIRST QUARTILE ($Q_1$) AND THIRD QUARTILE ($Q_3$)

The first and third quartiles are two statistical concepts which provide an indication of the way in which a group of observations is distributed around a specific intermediate value, the median. In this report, for example, the first quartile ($Q_1$) of the wage of a specific group of workers indicates that 25 per cent of the group receive less and 75 per cent more than the $Q_1$ wage. The third quartile ($Q_3$) of the group's wage will indicate that 75 per cent of the group earn less and 25 per cent of the group more than the $Q_3$ wage. This also means that 50 per cent of the group of workers earn more than the $Q_1$ wage, but less than the $Q_3$ wage. It can be presented schematically as follows.

FIGURE 3.1

WAGE SCALE




4 THE REPRESENTATIVENESS OF THE SURVEY GROUP

Before one can describe as reliable the findings of an investigation conducted with the aid of a sample, it is necessary to prove that the sample or survey group constitutes a representative group of the population or total group. However, it is clear that a survey group can only be compared with the population if certain characteristics, for example age distribution of both the population and the survey group are known. In this investigation, however, the survey group which is being dealt with has been drawn from a population of which most of the characteristics are unknown.

The survey group consists of 5116 followers of the above-mentioned professions who (a) live and work in the Republic of South Africa or South-West Africa, (b) are younger than 66 years of age, (c) are males and (d) are White persons (see p. 2).

Since the professional registers of the twelve professions also include persons who (a) are females, (b) are older than 66 years of age, (c) live and work beyound the borders of the Republic of South Africa or South-West Africa, (d) do not any longer pursue their profession actively or (e) are Non-Whites, it is obvious that the professional registers contain more persons than the population of this investigation. As a result, no useful purpose would be served by comparing the survey group with the persons in the professional registers.

Of the 39 816 persons whose names are recorded in the twelve professional registers, 29 352 or 61,2 per cent appeared in the National Register of Natural and Social Scientists at 1 March, 1971. Of the latter number, 20 499 were White males under the age of 66 years, were economically active and resided in the Republic of South Africa and South-West Africa. (The last-mentioned group of 20 499 professional workers will henceforth be referred to as the "National Register group".) Since it has already been proved that the National Register of Natural and Social Scientists is to a great extent representative of all highly qualified workers in the Republic of South Africa and South-West Africa (8, p. 13), it can be assumed that, if the survey group is representative of the National Register group, it will also be representative of the population.

The survey group is compared with the National Register group according to geographical distribution in Table 4.1 and according to age distribution in Table 4.2.

TABLE 4.1

GEOGRAPHICAL DISTRIBUTION OF THE SURVEY GROUP

| Province/region | National Register | | Survey group | |
|---|---|---|---|---|
| | N | % | N | % |
| Cape Province | 5437 | 26,5 | 1340 | 26,2 |
| Natal | 2695 | 13,2 | 675 | 13,2 |
| Transvaal | 10922 | 53,3 | 2701 | 52,8 |
| Orange Free State | 1068 | 5,2 | 287 | 5,6 |
| South-West Africa | 377 | 1,8 | 113 | 2,2 |
| TOTAL | 20499 | 100 | 5116 | 100 |

TABLE 4.2

AGE DISTRIBUTION OF THE SURVEY GROUP

A

| Group | N | Age | | |
|---|---|---|---|---|
| | | $Q_1$ | Me | $Q_2$ |
| National Register group | 20499 | 31,8 | 40,6 | 50,4 |
| Survey group | 5116 | 32,7 | 41,3 | 50,8 |

TABLE 4.2 (CONTINUED)
B

| Age group | National Register | | Survey group | |
|---|---|---|---|---|
| | N | % | N | % |
| 20 - 24 | 350 | 1,7 | 53 | 1,0 |
| 25 - 29 | 2900 | 14,2 | 662 | 12,9 |
| 30 - 34 | 3312 | 16,2 | 768 | 15,0 |
| 35 - 39 | 2767 | 13,5 | 709 | 13,9 |
| 40 - 44 | 2939 | 14,3 | 792 | 15,5 |
| 45 - 49 | 2927 | 14,3 | 764 | 14,9 |
| 50 - 54 | 2156 | 10,5 | 581 | 11,4 |
| 55 - 59 | 1681 | 8,2 | 429 | 8,4 |
| 60 - 64 | 1254 | 6,1 | 315 | 6,2 |
| 65 | 213 | 1,0 | 43 | 0,8 |
| TOTAL | 20499 | 100 | 5116 | 100 |

Tables 4.1 and 4.2 reveal that the survey group corres= ponds with the National Register group to a marked degree. It can thus be assumed that the survey group is a representative sample of the population.

## 5 THE WAGES OF THE PERSONS PURSUING THE TWELVE PROFESSIONS

In Table 5.1 and Figures 5.1 and 5.2 an analysis is made of the nominal wage structure of employees and the nominal profit structure of the self-employed persons who pursue the twelve professions. (In the case of self-employed persons, reference will be made, for the sake of brevity, to wages instead of net profits.)

In cases where the number of respondents in a group (N in the tables) is comparatively small, the relative wage level of the group should be assessed with circumspection, since there is a possibility that the wage level of the group has been influen= ced to such an extent by a small group of exceptional cases that a distorted picture of the true situation will be obtained.

However, such a possibility is comparatively remote where use is made of medians and quartiles for the purposes of compari= son, as has been done in this study.

The first and third quartiles of the observed wage levels are given in Table 5.1 in order to indicate the distritubtion of the observed wages about the central value, i.e. the median.

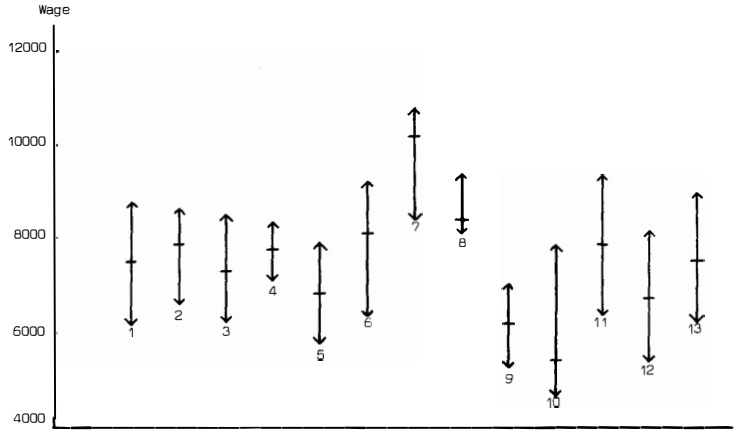
TABLE 5.1

WAGE STRUCTURE OF THE PROFESSIONAL MALE WORKERS ACCORDING TO PROFESSION AS AT 1 MARCH, 1971
Rands per annum

| Profession | Employers | | | | Self-employed | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Wage structure | | | N | Wage structure | | | N | Wage structure | | |
| | | $Q_1$ | Me | $Q_3$ | | $Q_1$ | Me | $Q_3$ | | $Q_1$ | Me | $Q_3$ |
| Engineer | 1477 | 6157 | 7455 | 8752 | 160 | 9333 | 13600 | 19846 | 1637 | 6272 | 7604 | 9244 |
| Architect | 67 | 6546 | 7812 | 8604 | 209 | 8451 | 12083 | 17950 | 276 | 7833 | 10333 | 15687 |
| Quantity surveyor | 54 | 6194 | 7222 | 8450 | 85 | 9437 | 12863 | 15982 | 139 | 7221 | 9437 | 15089 |
| Surveyor | 37 | 7017 | 7678 | 8296 | 66 | 8178 | 10272 | 12928 | 103 | 7364 | 8483 | 11125 |
| Veterinary surgeon | 41 | 5708 | 6750 | 7843 | 28 | 6400 | 8250 | 12000 | 69 | 6112 | 7156 | 9437 |
| General medical practitioner | 305 | 6276 | 8037 | 9174 | 459 | 10132 | 12644 | 15856 | 764 | 7607 | 10234 | 14071 |
| Medical specialist | 129 | 8297 | 10084 | 10693 | 239 | 13291 | 18586 | 23906 | 368 | 10177 | 13555 | 20583 |
| Dentist | 21 | 8015 | 8343 | 9375 | 174 | 8325 | 11090 | 14687 | 195 | 8187 | 10712 | 14031 |
| Pharmacist | 134 | 5203 | 6115 | 6982 | 198 | 6850 | 8395 | 12025 | 332 | 5714 | 7205 | 10000 |
| Attorney | 81 | 4562 | 5338 | 7791 | 478 | 8393 | 11958 | 15887 | 559 | 7471 | 10858 | 15401 |
| Advocate | 34 | 6250 | 7750 | 9250 | 53 | 7208 | 10928 | 15821 | 87 | 6593 | 9187 | 12541 |
| Auditor | 158 | 5250 | 6600 | 8019 | 429 | 9442 | 12663 | 17116 | 587 | 7334 | 10730 | 15401 |
| TOTAL | 2538 | 6092 | 7415 | 8870 | 2578 | 9025 | 12370 | 16717 | 5116 | 6902 | 8974 | 12769 |
| TOTAL (all men) | 9414 | 5113 | 6620 | 8199 | 3098 | 8279 | 12082 | 16156 | 12512 | 5457 | 7237 | 10032 |

FIGURE 5.1

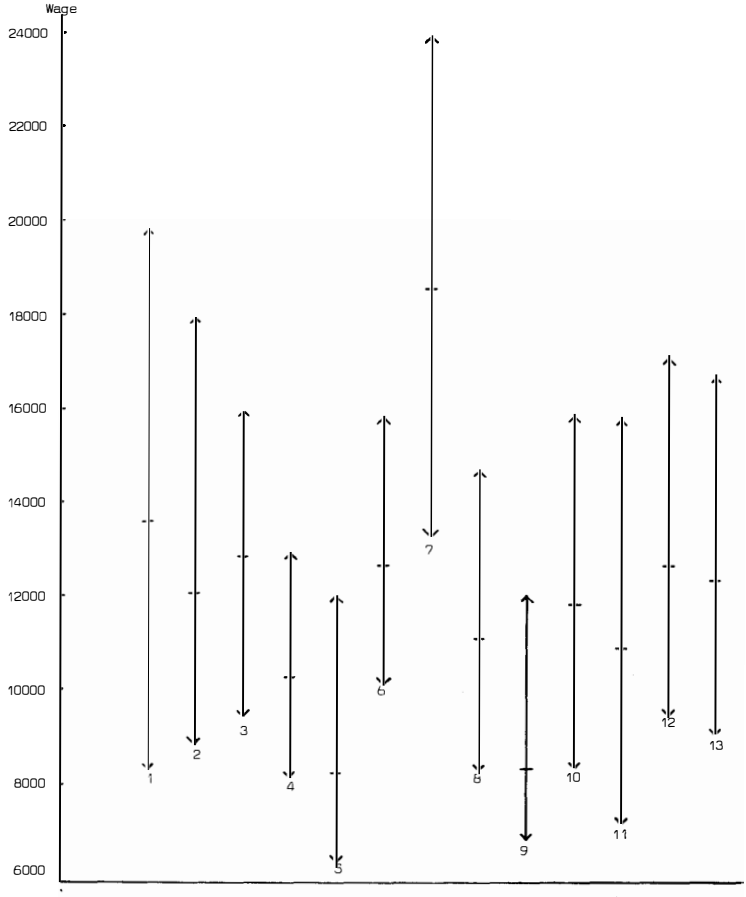
WAGE STRUCTURE OF THE EMPLOYED MALE FOLLOWERS OF TWELVE PROFESSIONS AS AT 1 MARCH, 1971
Rands per annum




1 Engineer
2 Architect
3 Quantity surveyor
4 Surveyor
5 Veterinary surgeon
6 General medical practitioner
7 Medical specialist
8 Dentist
9 Pharmacist
10 Attorney
11 Advocate
12 Auditor
13 TOTAL
^ third quartile
i median
v first quartile

FIGURE 5.2

WAGE STRUCTURE OF THE SELF-EMPLOYED MALE FOLLOWERS OF TWELVE PROFESSIONS AS AT 1 MARCH, 1971
Rands per annum




1 Engineer
2 Architect
3 Quantity surveyor
4 Surveyor
5 Veterinary surgeon
6 General medical practitioner
7 Medical specialist
8 Dentist
9 Pharmacist
10 Attorney
11 Advocate
12 Auditor
13 TOTAL
^ third quartile
– median
v first quartile

Where, in the following paragraphs, a calculated wage is discussed, only its central value, i.e. the median will be indicated.

In Table 5.2, the 12 professions are arranged in order of wages earned, from high to low, for each of $Q_1$, Me and $Q_3$ of the observed wage.

Since the data in Tables 5.1 and 5.2 are based on the $Q_1$, Me and $Q_3$ wages of each of the 24 groups and do not take other factors such as age, costs of training, duration of training, forfeited income, etc. into consideration at all, and since the above-mentioned factors will be considered in the following chapters, there will be no further discussion at this stage of the relative wage earnings and profitability of the 24 groups.

## 6 THE CALCULATION OF THE PROFITABILITY OF AN OCCUPATION

### 6.1 THE METHOD OF CALCULATION

When a number of occupations are compared with one another in order to determine their profitability, it is first necessary to calculate the profitability of each individual occupation. The profitability of an occupation can be calculated according to two methods which are in general use. According to the first, the rate of interest yielded by an investment in training for the occupation concerned, called the internal rate of return, is calculated. In this case, all costs of training and forfeited income constitute the investment, while the flow of wage receipts expected to be earned throughout the worker's entire professional career is regarded as interest yield and capital redemption.

According to the second method, which will be used in this study, the cash value of the flow of wage receipts, both positive and negative, which a worker expects to earn during his entire professional career, is calculated. In this case, costs of training and forfeited income constitute a negative occupational income and wage or net profit a positive occupational income, while an appropriate rate of interest is chosen on one or another applicable basis.

Apart from the fact that both Feldstein and Flemming (1, 79-85) and Hirshleifer (2, 329-352) have provided adequate proof that the cash value method is the better of the two, Wilkinson (3, 557) also points out that in the case where the sign (positive or negative) of the expected income flow changes more than once, it is impossible to use the internal rate of return method.

TABLE 5.2

WAGE RANK ORDER (FROM HIGH TO LOW) OF THE TWELVE PROFESSIONS AS AT 1 MARCH, 1971

| Rank order according to $Q_1$ wage | | Rank order according to Me wage | | Rank order according to $Q_3$ wage | |
|---|---|---|---|---|---|
| Employees | Self-employed persons | Employees | Self-employed persons | Employees | Self-employed persons |
| 1 Medical specialist | 1 Medical specialist | 1 Medical specialist | 1 Medical specialist | 1 Medical specialist | 1 Medical specialist |
| 2 Dentist | 2 Gen.med.practitioner | 2 Dentist | 2 Engineer | 2 Dentist | 2 Engineer |
| 3 Surveyor | 3 Auditor | 3 Gen.med.practitioner | 3 Quantity surveyor | 3 Advocate | 3 Architect |
| 4 Architect | 4 Quantity surveyor | 4 Architect | 4 Auditor | 4 Gen.med.practitioner | 4 Auditor |
| 5 Gen.med.practitioner | 5 Engineer | 5 Advocate | 5 Gen.med. practitioner | $Q_3$ - 12 Professions | $Q_3$ - 12 Professions |
| 6 Advocate | $Q_1$ - 12 Professions | 6 Surveyor | Me - 12 Professions | 5 Engineer | 5 Quantity surveyor |
| 7 Quantity surveyor | 6 Architect | 7 Engineer | 6 Architect | 6 Architect | 6 Attorney |
| 8 Engineer | 7 Attorney | Me - 12 Professions | 7 Attorney | 7 Quantity surveyor | 7 Gen.med. practitioner |
| $Q_1$ - 12 Professions | 8 Dentist | 8 Quantity surveyor | 8 Dentist | 8 Surveyor | 8 Advocate |
| 9 Veterinary surgeon | 9 Surveyor | 9 Veterinary surgeon | 9 Advocate | 9 Auditor | 9 Dentist |
| 10 Auditor | 10 Advocate | 10 Auditor | 10 Surveyor | 10 Veterinary surgeon | 10 Surveyor |
| 11 Pharmacist | 11 Pharmacist | 11 Pharmacist | 11 Pharmacist | 11 Attorney | 11 Pharmacist |
| 12 Attorney | 12 Veterinary surgeon | 12 Attorney | 12 Veterinary surgeon | 12 Pharmacist | 12 Veterinary surgeon |

6.2 THE FORMULA

The formula which is used to discount the expected flow of wage receipts, both positive and negative, is similar to that used by Terblanche in 1971 to calculate the relationship between differences in income, occupation and level of education of economically active Whites (4, 20).

The formula is

$$I = \sum_{t=18}^{65} \frac{I_t - K_t}{(1+\frac{r}{100})^{t-18}}$$

where

I = the cash value of the expected flow of wage receipts and costs from the age of 18 to the age of 65 of the average prospective follower of the occupation concerned, immediately prior to the commencement of his studies, i.e. at the end of his 17th year.

t = 18, 19, 20 ... 65

It is assumed that all followers of the 12 professions passed their matriculation examination in their 17th year, that they commenced their occupational training in their 18th year and that, after they have started practising their professions, they will continue to do so up to the end of their 65th year and that they will not die before they have reached their 66th year.

$I_t$ = the positive wage receipts which, it is expected, will be earned in year t in the pursuit of the occupation concerned.

$K_t$ = the negative income in year t, i.e. costs of training, forfeited income, etc. which, it is calculated, a person must incur in year t to equip himself for the occupation concerned.

r = the selected discount rate

7 CALCULATION OF THE COSTS OF TRAINING

7.1 COSTS OF STUDY

7.1.1 Duration of training

An analysis of the periods (number of years) which were

accepted in this investigation, for the purposes of calculation, as the normal duration of training for each of the twelve professions appears in Table 7.1.

It must be pointed out that, in respect of medical specialists, the South African Medical and Dental Council demands two years' practical experience after the housemanship year, while the University stipulates four years' part-time training. However, since one of the two years' practical training may be undergone simultaneously with one of the four years' part-time training, the total period of training amounts to only 12 years.

As can be perceived in Table 7.1, the accepted normal duration of training is not always equal to the minimum possible period of training. However, the periods as set out in Table 7.1 were decided upon in all cases, after consultation with practising members of the professions concerned and training and registration officials at various institutions where training for the 12 professions is provided.

7.1.2 Tuition fees

With the exception of pharmacy, the tuition fees charged by the University of Pretoria in 1972 were used for the purposes of calculation in this study. In the case of pharmacy, which is not offered by the University of Pretoria, the tuition fees charged by the Potchefstroom University for C.H.E. were used for this purpose. An exposition of the tuition fees as they were used for the purposes of calculation, appears in Table 7.2.

It is conceded that the total tuition fees for some fields of specialization in medicine are R10 less than the amount indicated in Table 7.2 and that the one amount of R140 will be payable during some of the students' 28th year instead of their 26th year but the effect on the eventual calculations is so minimal that the matter can be ignored. If, however, these calculations were, in fact, taken into account, it would mean that the absolute profitability of the medical profession would, as a result, be slightly higher.

7.1.3 Laboratory fees

Since there is very little uniformity among the training institutions with regard to the levying of laboratory fees and similar costs of training, and since these costs are so small that they will not have any appreciable effect on the findings of this investigation, it has been decided to ignore them completely.

TABLE 7.1

DURATION OF TRAINING ACCORDING TO PROFESSION

| Profession | Number of years of full-time study | Number of years of part-time study plus practical | Number of years of practical training | Total |
|---|---|---|---|---|
| Engineer | 5 | | | 5 |
| Architect | 5 | | 1 | 6 |
| Quantity surveyor | 2 | 3 | | 5 |
| Surveyor | 4 | 1 | | 5 |
| Veterinary surgeon | 5 | | | 5 |
| General medical practitioner | 6 | | 1 | 7 |
| Medical specialist | 6 | 3 or 4 | 3 or 2 | 12 |
| Dentist | 5 | | | 5 |
| Pharmacist | 4 | | 1 | 5 |
| Attorney | | 4 | 1 | 5 |
| Advocate | 6 | | | 6 |
| Auditor | | 6 | | 6 |

TABLE 7.2

TUITION FEES ACCORDING TO PROFESSION AND STUDENT'S YEAR OF LIFE

Rands per annum

| Profession | Tuition fees | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18th year | 19th year | 20th year | 21st year | 22nd year | 23rd year | 24th year | 25th year | 26th year | 27th year | 28th year | 29th year |
| Engineer | 230 | 230 | 230 | 230 | 230 | | | | | | | |
| Architect | 210 | 210 | 210 | 210 | 210 | | | | | | | |
| Quantity surveyor | 210 | 210 | 210 | 210 | 210 | | | | | | | |
| Surveyor | 230 | 230 | 230 | 230 | | | | | | | | |
| Veterinary surgeon | 210 | 300 | 300 | 300 | 300 | | | | | | | |
| Gen.med.practitioner | 210 | 290 | 290 | 290 | 290 | 290 | | | | | | |
| Medical specialist | 210 | 290 | 290 | 290 | 290 | 290 | | | | | | |
| Dentist | 210 | 300 | 300 | 300 | 300 | | | | 140 | 140 | 10 | 10 |
| Pharmacist | 210 | 210 | 210 | 210 | | | | | | | | |
| Attorney | 210 | 210 | 210 | 210 | | | | | | | | |
| Advocate | 180 | 180 | 180 | 210 | 210 | 210 | | | | | | |
| Auditor | 100 | 100 | 100 | 100 | 100 | 100 | | | | | | |

7.1.4 Cost of living (food, clothing and accommodation)

Since cost of living is an ever-present factor, irrespective of whether a person is engaged in training or has started work immediately after matriculating, it does not form an integral part of the costs of training and will consequently not be taken into account.

7.2 FORFEITED INCOME

When the costs of training for one or another occupation are calculated, it is normal procedure to take forfeited income as a cost of training into account as well. This is done by Terblanche (4), Wilkinson (3), Hirshleifer (2) and Feldstein and Flemming (1).

It is assumed in this study that the followers of the 12 professions, who are all required to be in possession of a matriculation certificate before they can commence training, could all have entered the Civil Service and thus were compelled to forfeit a wage equal to that paid by the Government to matriculated clerks in order to receive their training. There are, however, two exceptions to this rule, viz medical specialists and advocates.

It is common knowledge that the majority of the country's present corps of medical specialists only commenced their training as specialists after practising for a considerable period as general medical practitioners. However, it would appear that there is at present a tendency among medical practitioners to commence specialized medical training at an earlier age. It was decided, for the sake of uniformity, to assume that medical specialists commence their training as medical specialists at the earliest possible juncture.

Since only those persons who have already been registered as general medical practitioners with the South African Medical and Dental Council can be admitted to a training course in a field of specialization, it can thus be assumed that they could have at least obtained posts as medical officers in the various Provincial Hospital Administrations. For this reason, the forfeited wage in the case of medical specialists between their 25th and 29th years was regarded, for the purposes of comparison, as equal to the median wage received by general medical practitioners as employees in the corresponding years, as was apparent from the 1971 wage survey (9).

In the case of advocates, students are not admitted to the LL.B. course unless they have already obtained another Bache-

lor's degree (B.A. Law or B.Com.). A person possessing a Bache= lor's degree receives a higher wage in the Civil Service than one who has only a matriculation certificate. For this reason, the forfeited income during the last three years of an advocate's training was regarded as equal to the wage received by a gra= duate employee in the Government service.

The amounts which were calculated as forfeited wages appear in Table 7.3.

The amounts mentioned in Table 7.3 were, however, only regarded as costs in cases where they were higher than the wages earned by a person as a part-time or extra-mural student in any particular year (see Table 7.4).

## 7.3 WAGES AND OTHER INCOME DURING TRAINING

It is well-known that a large percentage of students re= ceive one or another form of income, while training for one of the twelve professions, which they would not have had if they had not been engaged in such training. Such incomes can be di= vided into two main groups, viz (a) income received for which no services are required and (b) wage received for services rendered.

The first group included bursaries (also bursaries do= nated by parents and other relatives), merit awards, cash prizes, etc., provided that they are not refundable. Since such amounts vary from student to student and depend in many cases on the fa= mily relationship of the student to the donor of the bursary, they were not considered in this study. It should be thoroughly understood, however, that if the student had not received such amounts if he had not been engaged in studying in one of the 12 fields, it represents a definite income earned in the profession. The fact that it has not been considered in this study means that the cash value of the wage receipts of the profession con= cerned has been underestimated.

The second group includeds the wages of part-time and extra-mural students and the wages paid to students engaged in practical training, for example the R4050 earned by a medical practitioner in his 7th year of training as a houseman at a Transvaal Provincial Hospital. All amounts which were consider= ed under this heading in the study appear in Table 7.4.

In the case of engineers, architects, surveyors, pharma= cists, attorneys and auditors, the amounts in Table 7.4 were decided upon after consultation with a number of members of the professions employing students who are still engaged in training.

TABLE 7.3

FORFEITED INCOME ACCORDING TO PROFESSION AND STUDENT'S YEAR OF LIFE

Rands per annum

| Profession | Forfeited income | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18th year | 19th year | 20th year | 21st year | 22nd year | 23rd year | 24th year | 25th year | 26th year | 27th year | 28th year | 29th year |
| Engineer | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Architect | 1560 | 1680 | 1800 | 1920 | 2040 | 2160 | | | | | | |
| Quantity surveyor | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Surveyor | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Veterinary surgeon | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Gen.med.practitioner | 1560 | 1680 | 1800 | 1920 | 2040 | 2160 | 2280 | | | | | |
| Medical specialist | 1560 | 1680 | 1800 | 1920 | 2040 | 2160 | 2280 | 5848 | 6013 | 6181 | 6353 | 6401 |
| Dentist | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Pharmacist | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Attorney | 1560 | 1680 | 1800 | 1920 | 2040 | | | | | | | |
| Advocate | 1560 | 1680 | 1800 | 2700 | 2850 | 3000 | | | | | | |
| Auditor | 1560 | 1680 | 1800 | 1920 | 2040 | 2160 | | | | | | |

TABLE 7.4

WAGE DURING TRAINING ACCORDING TO PROFESSION AND YEAR OF LIFE
Rands per annum

| Profession | Income during training | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18th year | 19th year | 20th year | 21st year | 22nd year | 23rd year | 24th year | 25th year | 26th year | 27th year | 28th year | 29th year |
| Engineer | | | | | | 3528 | | | | | | |
| Architect | | | | | | 4200 | | | | | | |
| Quantity surveyor | | | 1560 | 2040 | 2640 | | | | | | | |
| Surveyor | | | | | 3600 | | | | | | | |
| Veterinary surgeon | | | | | | | | | | | | |
| Gen.med. practitioner | | | | | | | 4050 | | | | | |
| Medical specialist | | | | | | | 4050 | 5700 | 6000 | 6300 | 6600 | 6900 |
| Dentist | | | | | | | | | | | | |
| Pharmacist | | | | | 1800 | | | | | | | |
| Attorney | 720 | 960 | 1200 | 1440 | 1680 | | | | | | | |
| Advocate | | | | | | | | | | | | |
| Auditor | 1440 | 1680 | 1920 | 2160 | 2400 | 3000 | | | | | | |

As regards quantity surveyors, the amounts mentioned constitute the minimum wages prescribed by the association of quantity surveyors, while the amounts for medical practitioners are the wages paid to housemen, senior housemen and clinical assistants in Transvaal Provincial hospitals.

As can be seen in Table 7.4, it is assumed that it is normal procedure for attorneys and auditors to obtain their qualifications by dint of part-time study. This assumption was decided upon after consultation with a number of members of the two professions.

It should be noted that the income earned by a student during his training actually represents a decrease in the costs of training and this fact was consequently taken into account. In cases where the actual income was larger than the calculated forfeited incomes as indicated in Table 7.3, the forfeited income was completely ignored.

## 8 THE INCOME FLOW

### 8.1 THE OBSERVED WAGES

There are two known methods for calculating the cash value of the flow of expected wage receipts of a new or prospective entrant to a profession at a given moment. According to the first method, information is gathered on the wage history of a large number of followers of the profession concerned. The expected future course of the wage receipts of the profession are then predicted on the basis of the historical data.

However, there are two important objections to the historical data method. Historical data are, in the first place, seldom if ever available and are very difficult to come by. When they are available or obtainable, their validity is not always above suspicion. In the second place, it is seldom possible to assume that the same factors such as depressions, inflation, innovations, redistributions of income, etc. of the past, which could possibly have exerted a great influence on the historical wage pattern of a particular group, will also be present in the future and if they are, in fact, present, what their influence will be on the wages of a particular occupational group.

The second method makes use of wage and age data, as at a particular juncture, gathered from a considerable number of persons. An analysis of the wage data according to age is accepted as descriptive of a process which embraces a course of time or will do so if the investigation is directed towards the

future. This is the so-called cross-section method which is used fairly generally in the human sciences. The same method was also used by Terblanche (4), Wilkinson (3), Hirshleifer (2) and Feldstein and Flemming (1) and it will be used in this investigation as well.

An analysis of the medians of the wages of 5116 persons according to profession, occupational status and age as at 1 March 1971 appears in Table 8.1. The wage distributions (according to age) of the twenty-four different groups are also presented in the form of graphs in Figures 8.1 to 8.24.

According to Table 8.1, there are outlying wages in a few age groups which were calculated on the strength of data supplied by only two followers of the profession concerned. Since these wages can be mere chance outliers and their inclusion can possibly give rise to unreliable findings, it was decided to exclude them from all further calculations. The four cases which were excluded for this reason are:

(a) Surveyors, self-employed, age group 25 to 29.

(b) Surveyors, employees, age group 36 to 39.

(c) Quantity surveyors, self-employed, age group 65.

(d) General medical practitioners, self-employed, age group 65.

In cases where there is only one person in an age group, this person's wage was not taken into account either in the subsequent calculations.

## 8.2 THE CALCULATED WAGE DISTRIBUTION

In order to eliminate, as far as possible, chance irregularities in the observed wages of the various professions, the medians of the observed wages are not themselves used for the calculation of the profitability of the twelve professions. Use is made of regression (or adjusted) median values, which were calculated in the usual manner by means of the least squares method with the aid of a third degree regression function as the basis of description of the wage/age pattern and as the basis for the calculation of the cash value of the expected wage receipt flow of each of the twelve professions.

The calculated median wages, i.e. the regression values of the medians of the observed wages according to age, profession and occupational status are analysed in Table 8.2. They are also presented in the form of graphs in Figures 8.1 to 8.24, in conjunction with the medians of the observed wages.

TABLE 8.1

THE MEDIAN OF THE OBSERVED WAGES ACCORDING TO AGE GROUP, OCCUPATIONAL STATUS AND PROFESSION AS AT 1 MARCH, 1971

Rands per annum

Employees

| Age group | Engineer | | Architect | | Quantity surveyor | | Surveyor | | Veterinary surgeon | | Gen. med. practitioner | | Medical specialist | | Dentist | | Pharma-cist | | Attorney | | Advocate | | Auditor | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage | N | Me-wage |
| 20-24 | 37 | 4057 | | | | | | | | | 2 | 5500 | | | | | 1 | | 4 | 4250 | | | 4 | 5000 |
| 25-29 | 258 | 5064 | 2 | 6500 | 11 | 5625 | | | 12 | 5166 | 93 | 6175 | 4 | 5500 | 3 | 6749 | 35 | 5468 | 32 | 4928 | 6 | 5000 | 61 | 5281 |
| 30-34 | 234 | 6769 | 6 | 6500 | 11 | 7187 | 4 | 7500 | 7 | 6375 | 52 | 7125 | 25 | 8181 | 5 | 8250 | 28 | 5500 | 19 | 5392 | 5 | 7125 | 28 | 6700 |
| 35-39 | 167 | 7541 | 8 | 8000 | 5 | 7750 | 2 | 6750 | 2 | 6750 | 22 | 8100 | 18 | 9250 | 3 | 8375 | 26 | 6428 | 5 | 7250 | 5 | 9250 | 16 | 7333 |
| 40-44 | 194 | 8068 | 17 | 8312 | 7 | 7750 | 10 | 7375 | 3 | 7249 | 24 | 8666 | 21 | 10150 | 1 | | 10 | 7500 | 7 | 6750 | 5 | 8625 | 23 | 8187 |
| 45-49 | 216 | 8294 | 10 | 8250 | 12 | 8500 | 9 | 7874 | 4 | 8000 | 37 | 9281 | 25 | 10458 | 1 | | 13 | 6150 | 3 | 8249 | 4 | 8500 | 8 | 7500 |
| 50-54 | 169 | 8490 | 8 | 8250 | 3 | 7749 | 4 | 8000 | 6 | 8000 | 31 | 9156 | 19 | 10541 | 3 | 8375 | 7 | 7375 | 4 | 13000 | 3 | 9249 | 7 | 8250 |
| 55-59 | 105 | 8187 | 8 | 7000 | 5 | 9375 | 4 | 8500 | 5 | 7250 | 19 | 9350 | 12 | 10200 | 2 | 8500 | 7 | 6250 | 3 | 5249 | 3 | 8249 | 7 | 6375 |
| 60-64 | 86 | 8500 | 8 | 7250 | | | 2 | 7500 | 1 | | 19 | 8406 | 4 | 10666 | 2 | 9500 | 5 | 5250 | 3 | 10500 | 2 | 7000 | 4 | 7500 |
| 65 | 11 | 7250 | | | | | | | 1 | | 6 | 7749 | | | 1 | | 2 | 4500 | 1 | | 1 | | | |
| TOTAL | 1477 | 7455 | 67 | 7812 | 54 | 7222 | 37 | 7678 | 41 | 6750 | 305 | 8037 | 129 | 10084 | 21 | 8343 | 134 | 6115 | 81 | 5338 | 34 | 7750 | 158 | 6600 |

Self-employed persons

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20-24 | | | | | | | | | | | 1 | | | | | | 1 | | 1 | | | | | |
| 25-29 | | | 3 | 7249 | 4 | 12500 | 2 | 4000 | 11 | 7125 | 27 | 14500 | | | 10 | 11000 | 21 | 7187 | 23 | 9375 | 4 | 4500 | 38 | 9200 |
| 30-34 | 20 | 10666 | 21 | 9125 | 15 | 12500 | 6 | 10666 | 5 | 7375 | 49 | 12291 | 15 | 14500 | 21 | 10500 | 31 | 8208 | 80 | 10000 | 10 | 15000 | 70 | 12071 |
| 35-39 | 23 | 15500 | 34 | 11000 | 19 | 10750 | 14 | 9500 | 4 | 8000 | 57 | 13750 | 25 | 18833 | 32 | 12750 | 33 | 8916 | 97 | 12305 | 9 | 9250 | 83 | 12950 |
| 40-44 | 31 | 14250 | 42 | 12888 | 13 | 15125 | 17 | 10500 | 2 | 8500 | 75 | 13416 | 56 | 15857 | 41 | 11166 | 41 | 9187 | 78 | 12500 | 12 | 12500 | 62 | 13000 |
| 45-49 | 30 | 13000 | 33 | 10722 | 14 | 15000 | 10 | 12000 | 3 | 8249 | 94 | 12769 | 58 | 20800 | 27 | 10928 | 37 | 8458 | 53 | 12833 | 5 | 15500 | 58 | 14000 |
| 50-54 | 20 | 13000 | 30 | 17000 | 3 | 18499 | 8 | 8333 | 2 | 9500 | 75 | 12550 | 46 | 19428 | 21 | 10500 | 9 | 14750 | 57 | 11625 | 6 | 10000 | 40 | 16000 |
| 55-59 | 16 | 18500 | 21 | 12500 | 8 | 12333 | 5 | 10750 | 1 | | 48 | 12000 | 22 | 18666 | 10 | 10000 | 10 | 7000 | 49 | 12083 | 5 | 10500 | 54 | 14333 |
| 60-64 | 18 | 9000 | 20 | 15500 | 7 | 15750 | 4 | 9250 | | | 31 | 10625 | 16 | 15000 | 10 | 10500 | 13 | 7375 | 36 | 11333 | 1 | | 23 | 15500 |
| 65 | 1 | | 5 | 6250 | 2 | 7500 | | | | | 2 | 7500 | 1 | | 2 | 10000 | 2 | 9000 | 4 | 15000 | 1 | | 1 | |
| TOTAL | 160 | 13600 | 209 | 12083 | 85 | 12863 | 66 | 10272 | 28 | 8250 | 459 | 12644 | 239 | 18586 | 174 | 11090 | 198 | 8395 | 478 | 11958 | 53 | 10928 | 429 | 12663 |

FIGURE 8.1

MEDIAN WAGE OF ENGINEERS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

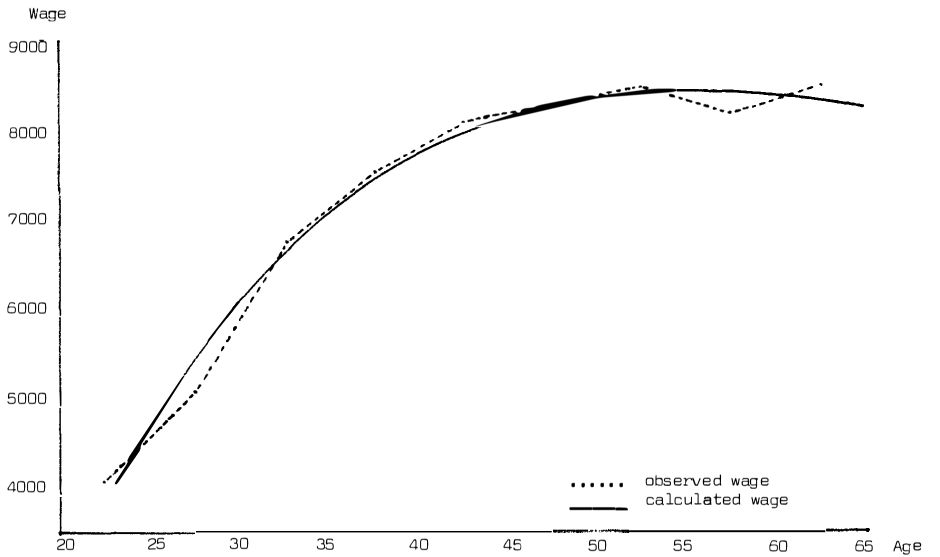


FIGURE 8.2

MEDIAN WAGE OF ARCHITECTS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

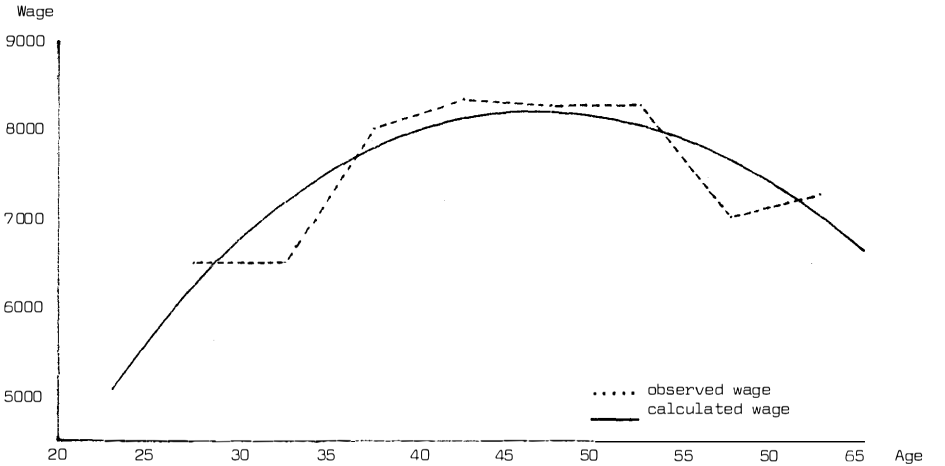


FIGURE 8.3

MEDIAN WAGE OF QUANTITY SURVEYORS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

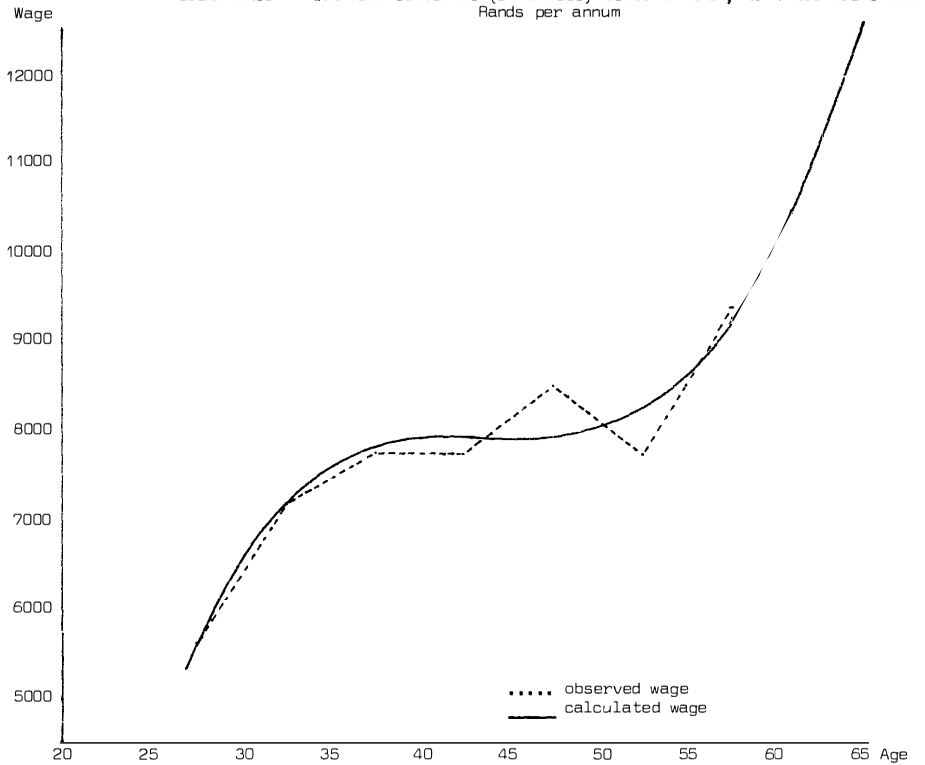


FIGURE 8.4

MEDIAN WAGE OF SURVEYORS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

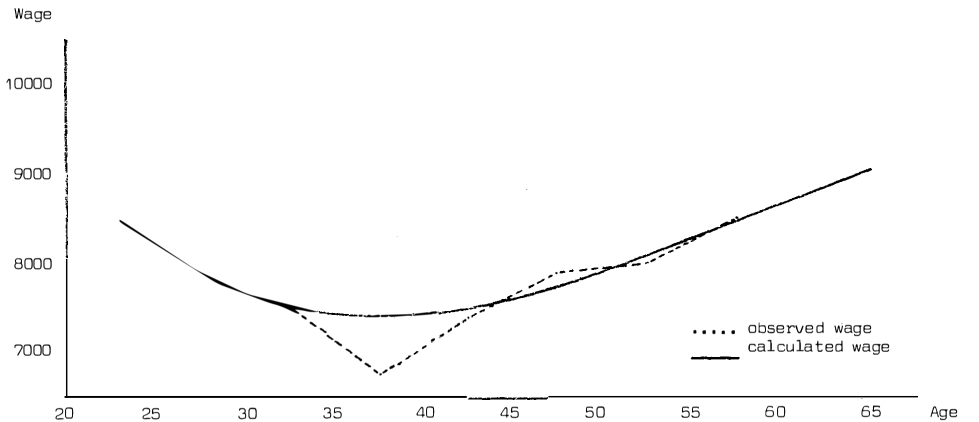


FIGURE 8.5

MEDIAN WAGE OF VETERINARY SURGEONS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

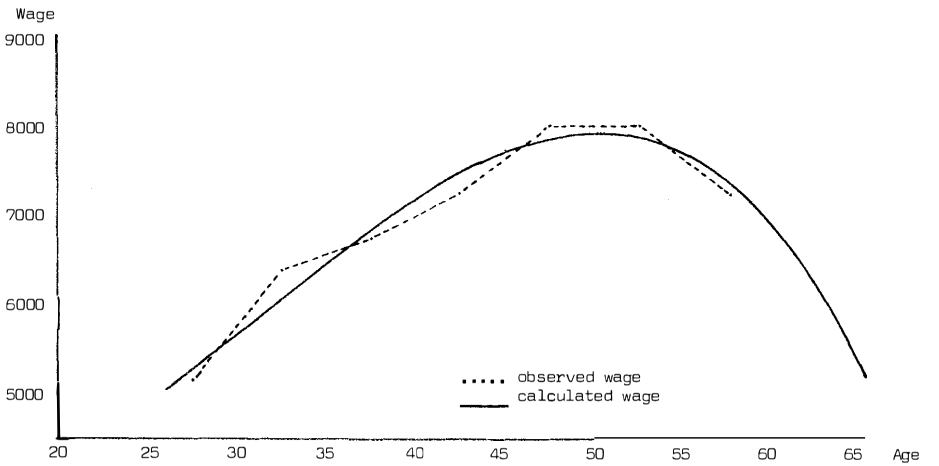


FIGURE 8.6

MEDIAN WAGE OF GENERAL MEDICAL PRACTITIONERS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

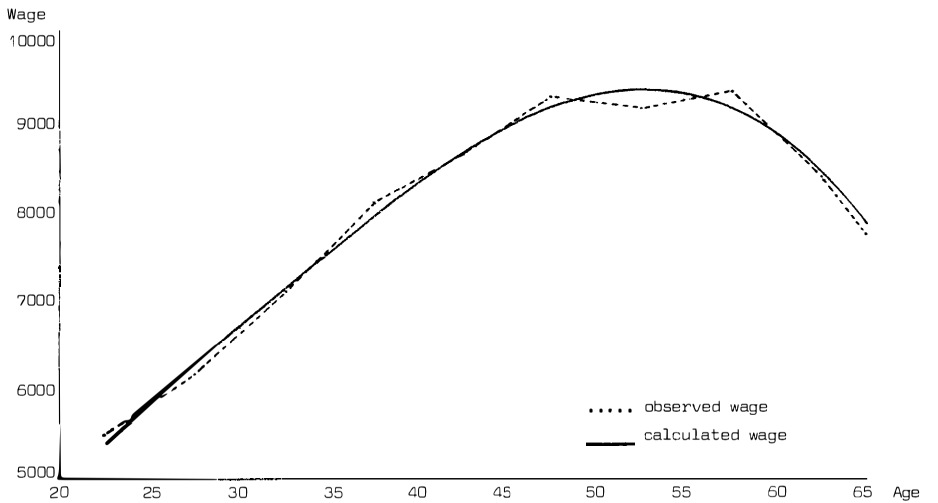


FIGURE 8.7

MEDIAN WAGE OF MEDICAL SPECIALISTS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

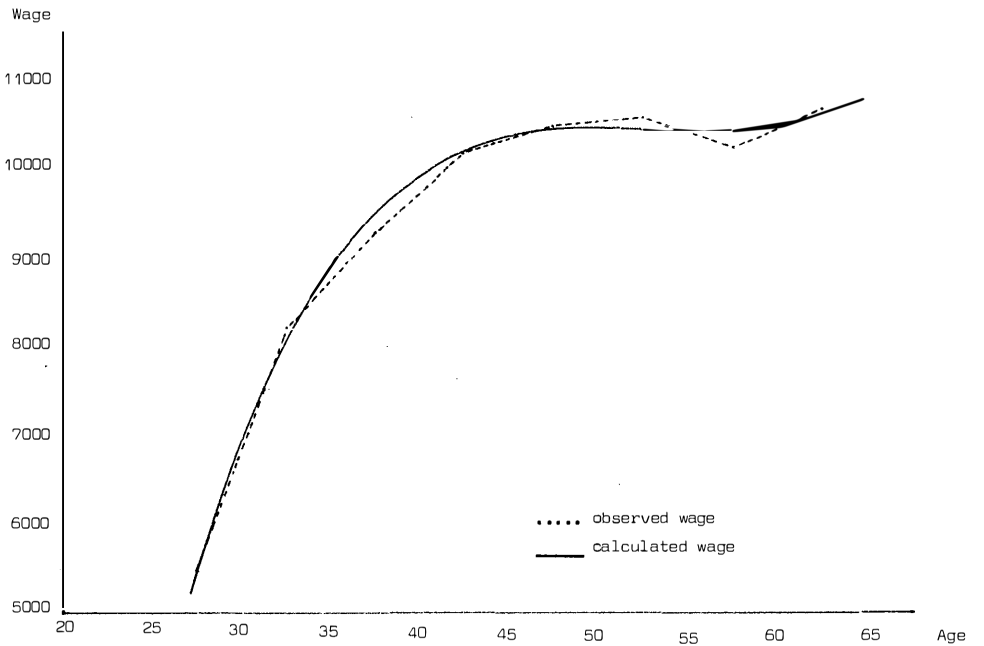


FIGURE 8.8

MEDIAN WAGE OF DENTISTS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

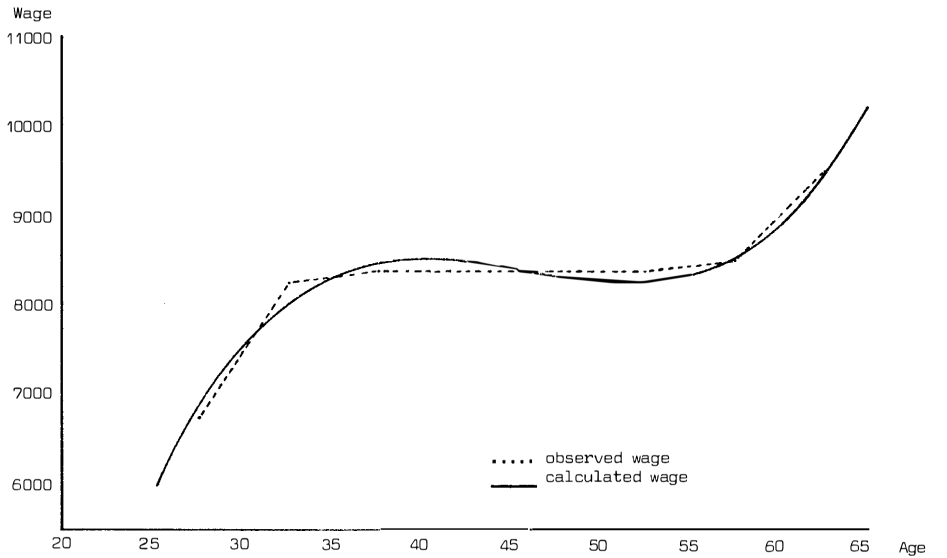


FIGURE 8.9

MEDIAN WAGE OF PHARMACISTS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

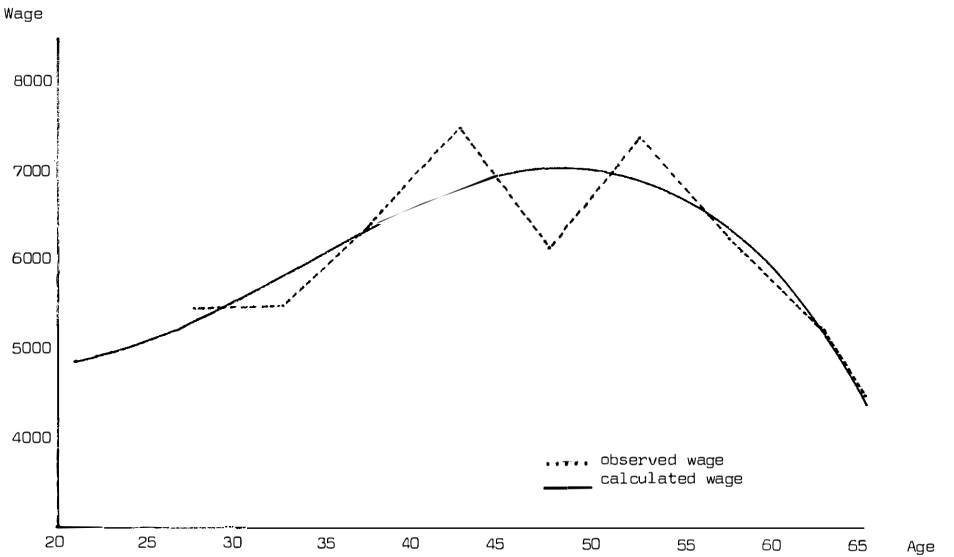


FIGURE 8.10

MEDIAN WAGE OF ATTORNEYS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

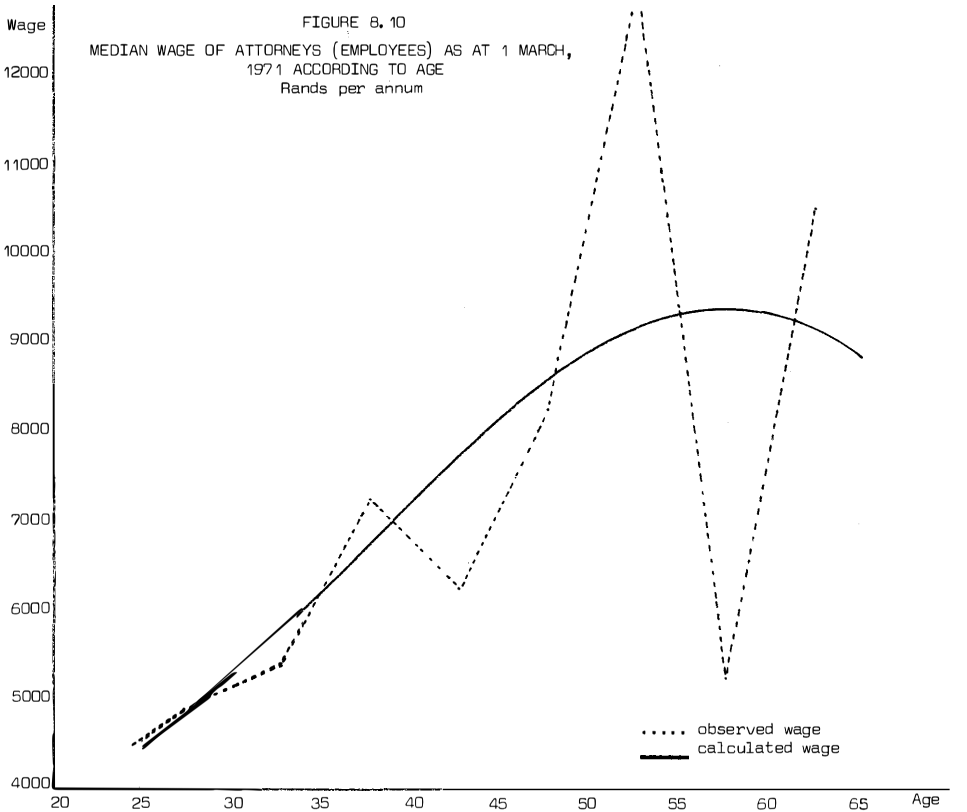


FIGURE 8.11

MEDIAN WAGE OF ADVOCATES (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

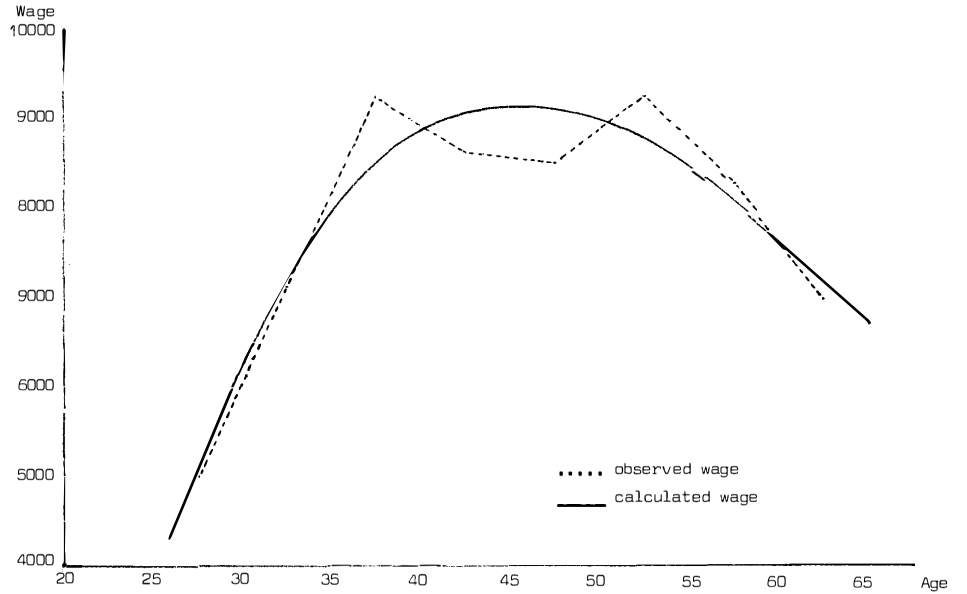
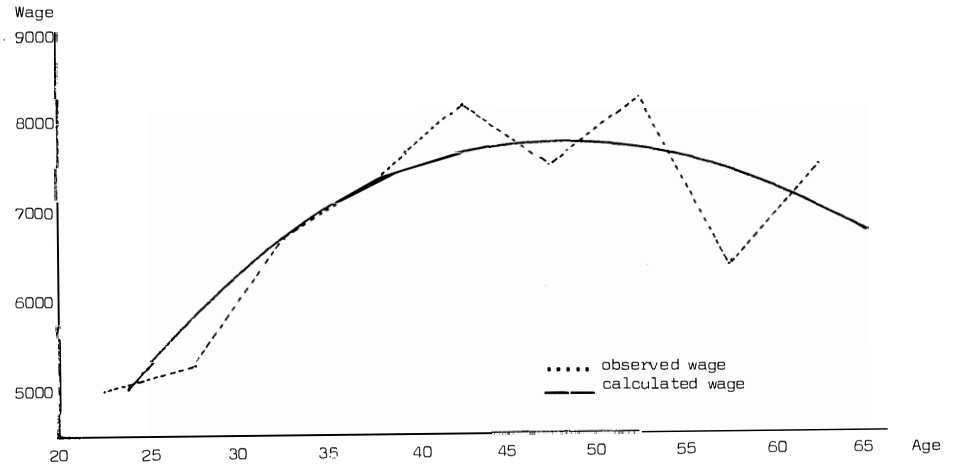


FIGURE 8.12

MEDIAN WAGE OF AUDITORS (EMPLOYEES) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum



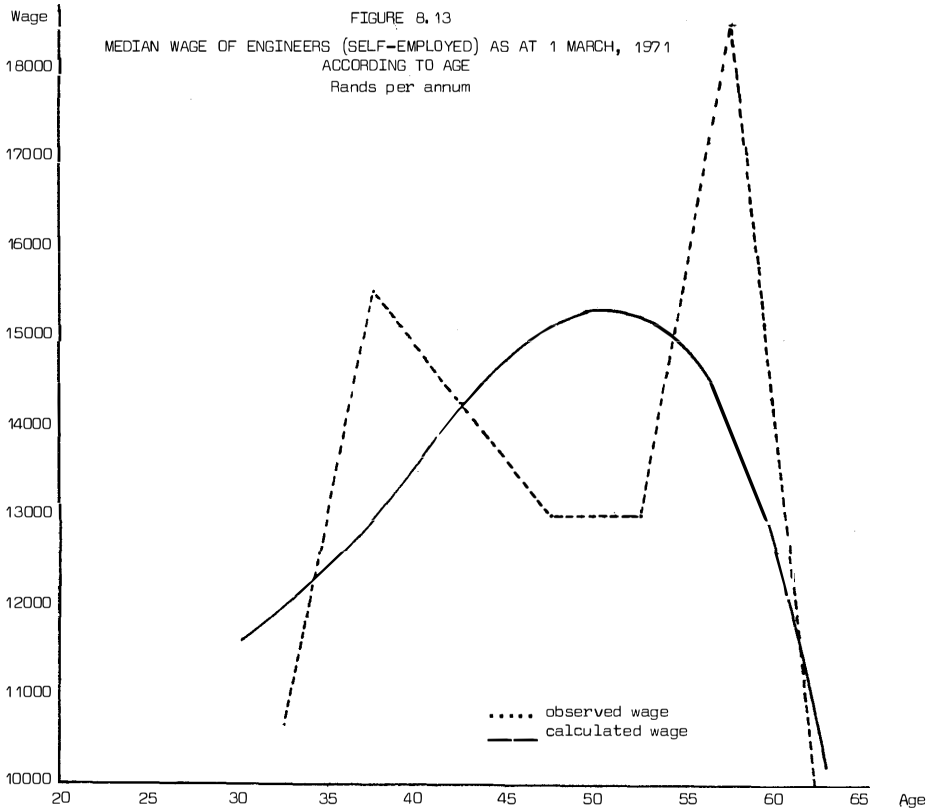


FIGURE 8.13
MEDIAN WAGE OF ENGINEERS (SELF-EMPLOYED) AS AT 1 MARCH, 1971
ACCORDING TO AGE
Rands per annum
Wage
18000
17000
16000
15000
14000
13000
12000
11000
10000
20
25
30
35
40
45
50
55
60
65
Age
observed wage
calculated wage

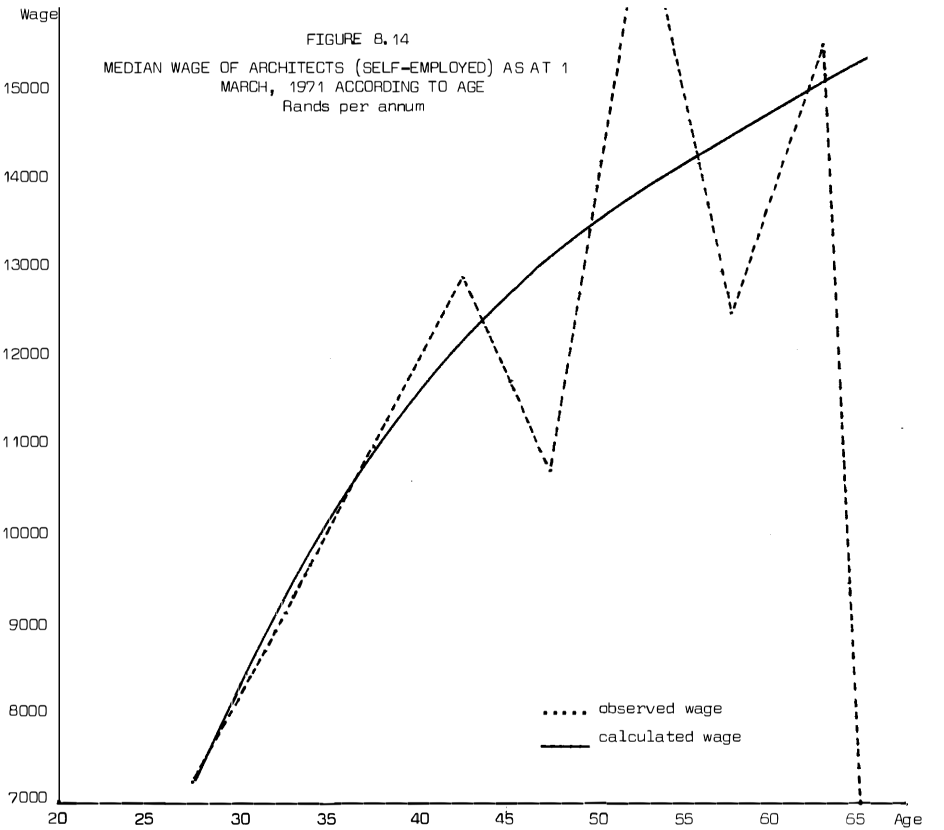


FIGURE 8.14
MEDIAN WAGE OF ARCHITECTS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum
Wage
15000
14000
13000
12000
11000
10000
9000
8000
7000
20
25
30
35
40
45
50
55
60
65
Age
observed wage
calculated wage

FIGURE 8.15

MEDIAN WAGE OF QUANTITY SURVEYORS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

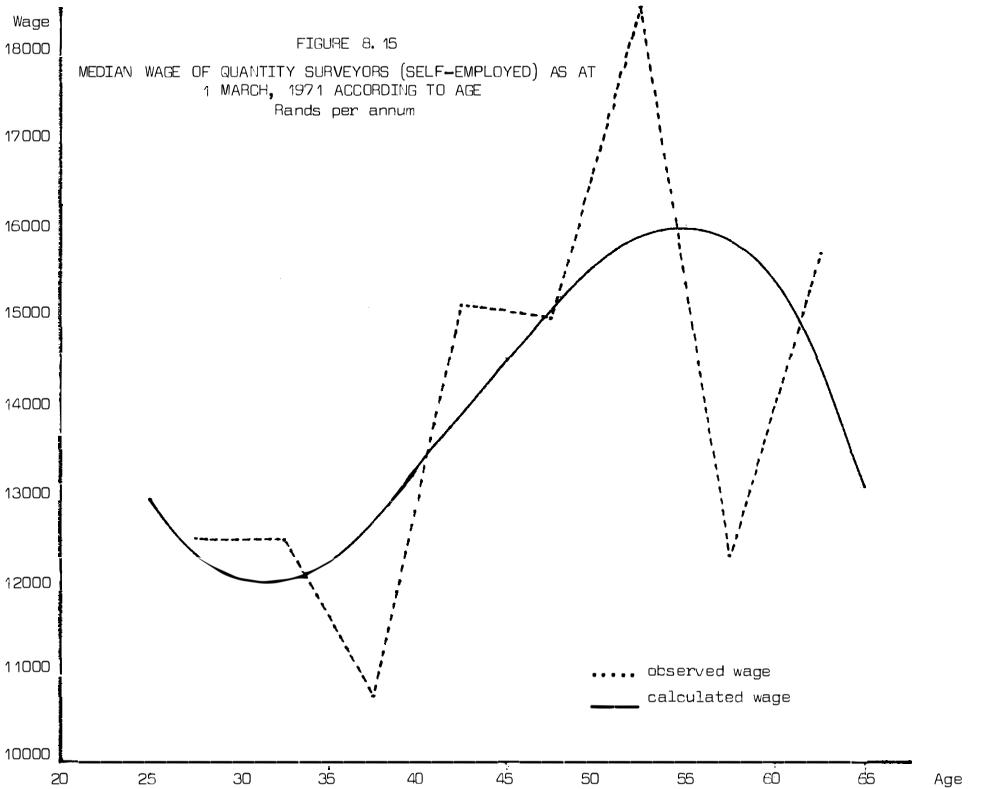


FIGURE 8.16

MEDIAN WAGE OF SURVEYORS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

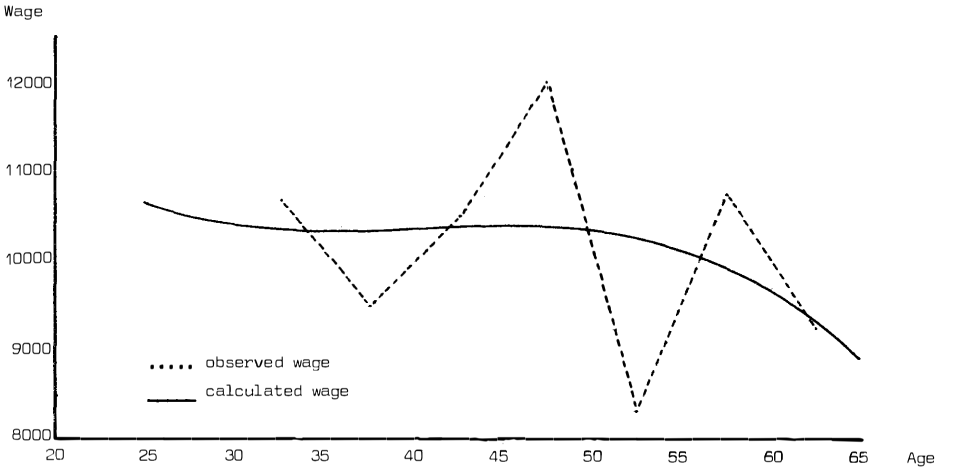


FIGURE 8.17

MEDIAN WAGE OF VETERINARY SURGEONS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

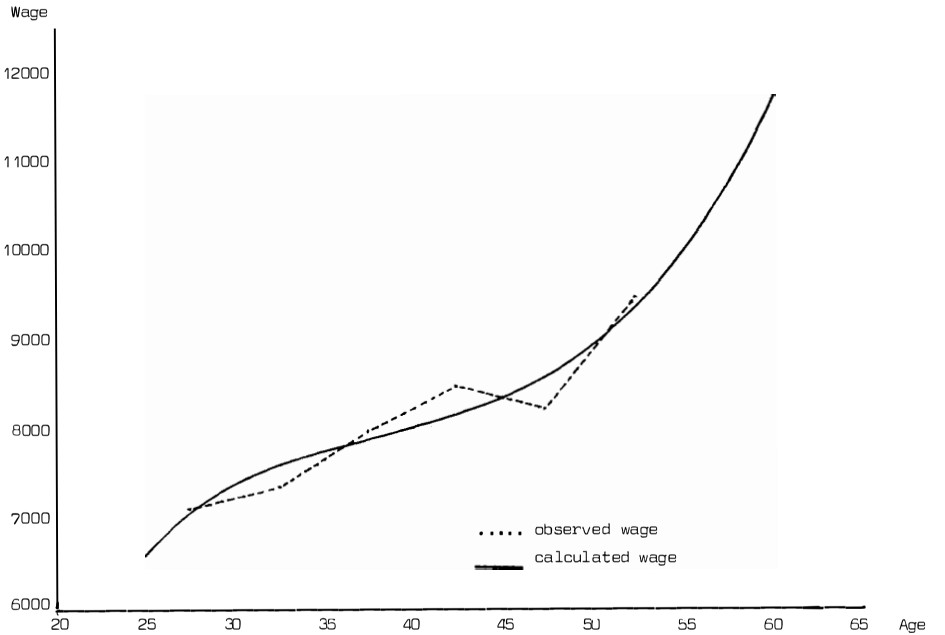


FIGURE 8.18

MEDIAN WAGE OF GENERAL MEDICAL PRACTITIONERS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

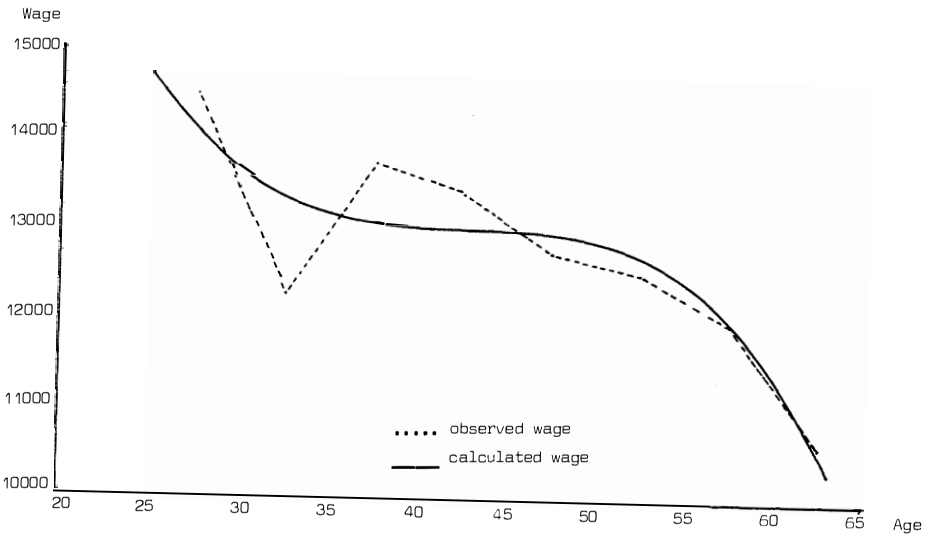


FIGURE 8.19

MEDIAN WAGE OF MEDICAL SPECIALISTS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

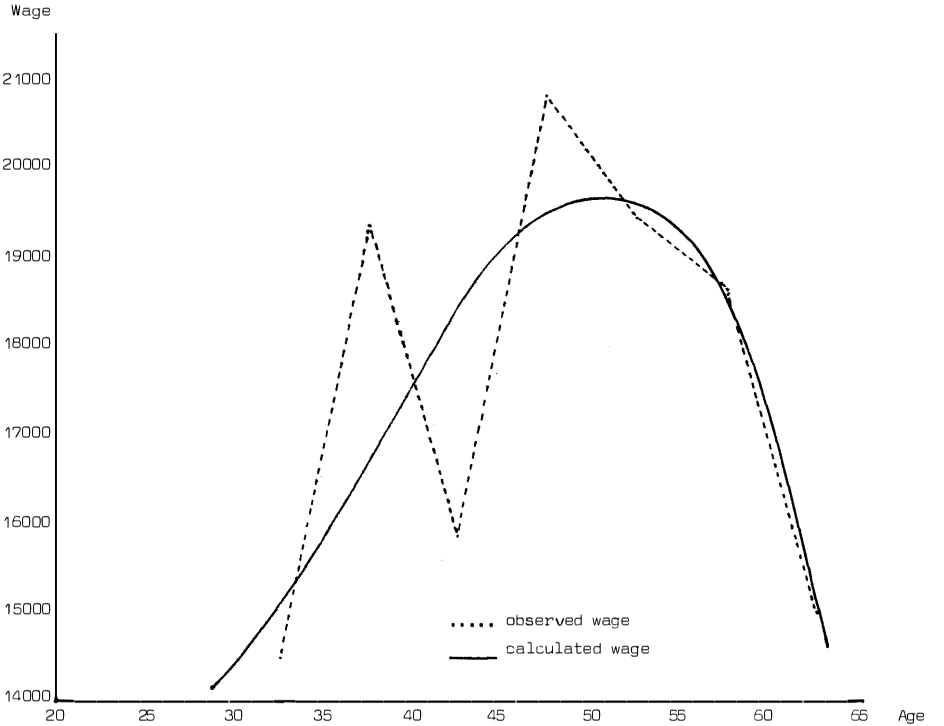


FIGURE 8.20

MEDIAN WAGE OF DENTISTS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE
Rands per annum

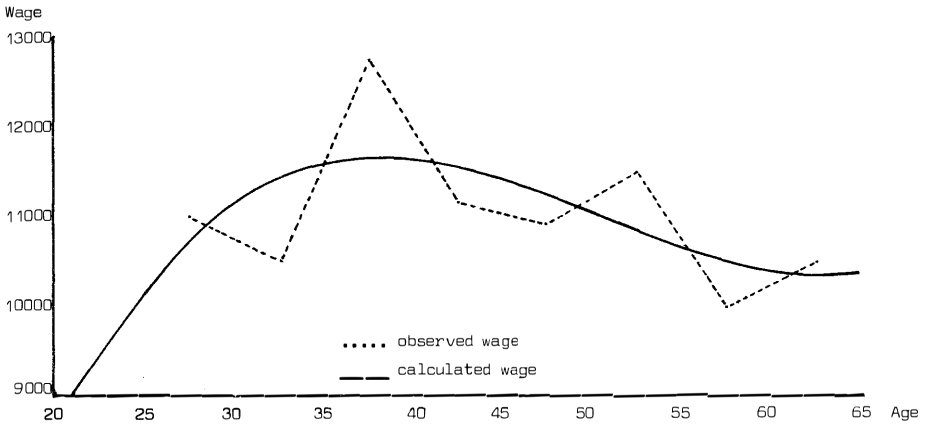


FIGURE 8.21

MEDIAN.WAGE OF PHARMACISTS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

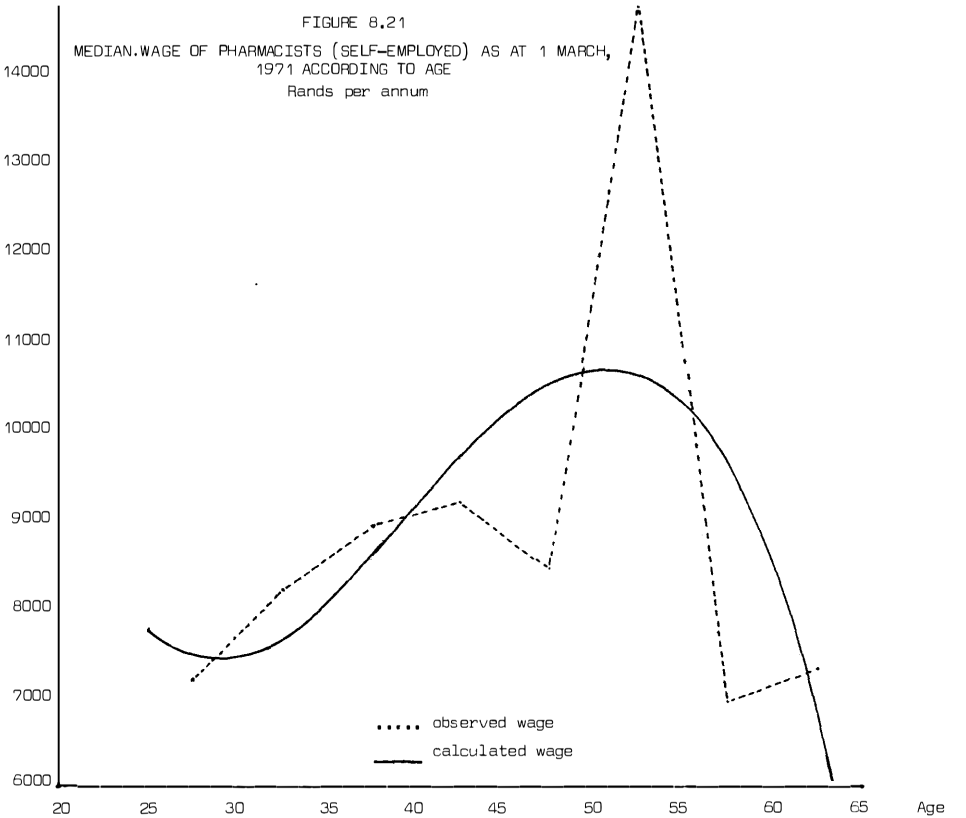


FIGURE 8.22

MEDIAN WAGE OF ATTORNEYS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

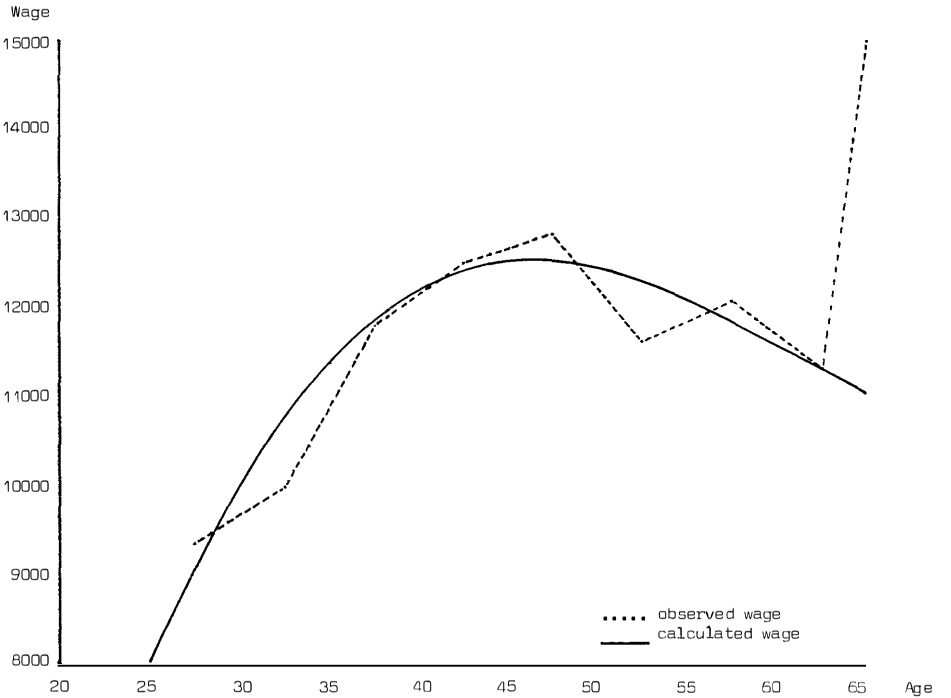


FIGURE 8.23

MEDIAN WAGE OF ADVOCATES (SELF-EMPLOYED) AS AT 1 MARCH, 1971
ACCORDING TO AGE
Rands per annum

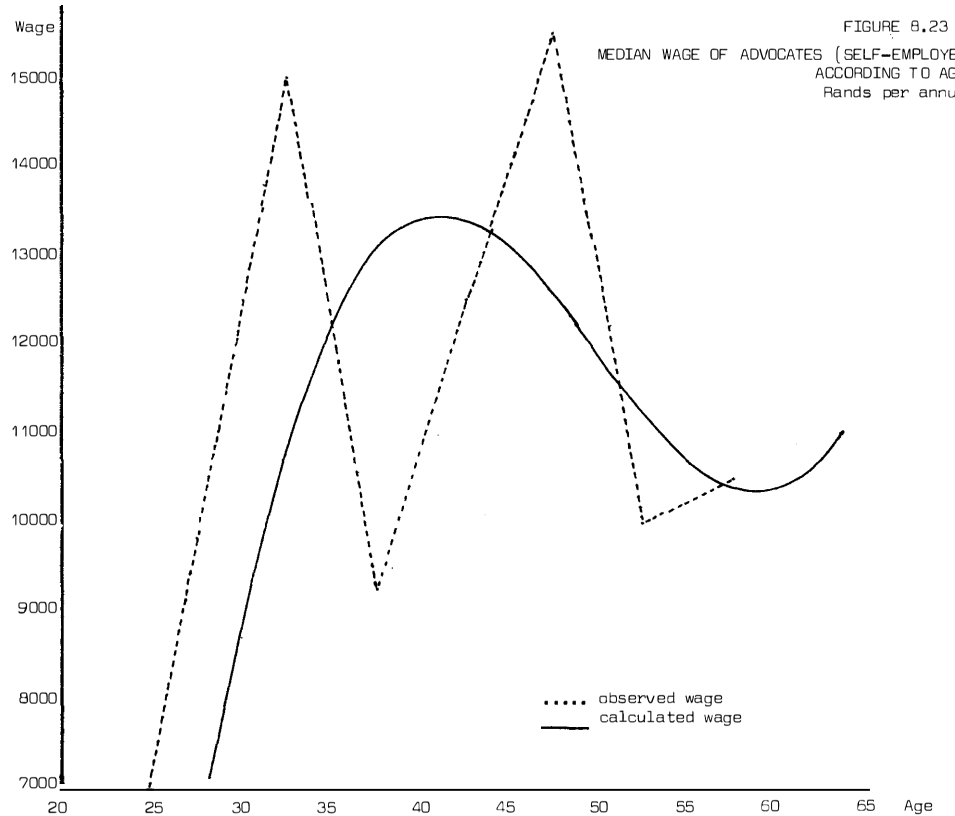


FIGURE 8.24

MEDIAN WAGE OF AUDITORS (SELF-EMPLOYED) AS AT 1 MARCH, 1971 ACCORDING TO AGE

Rands per annum

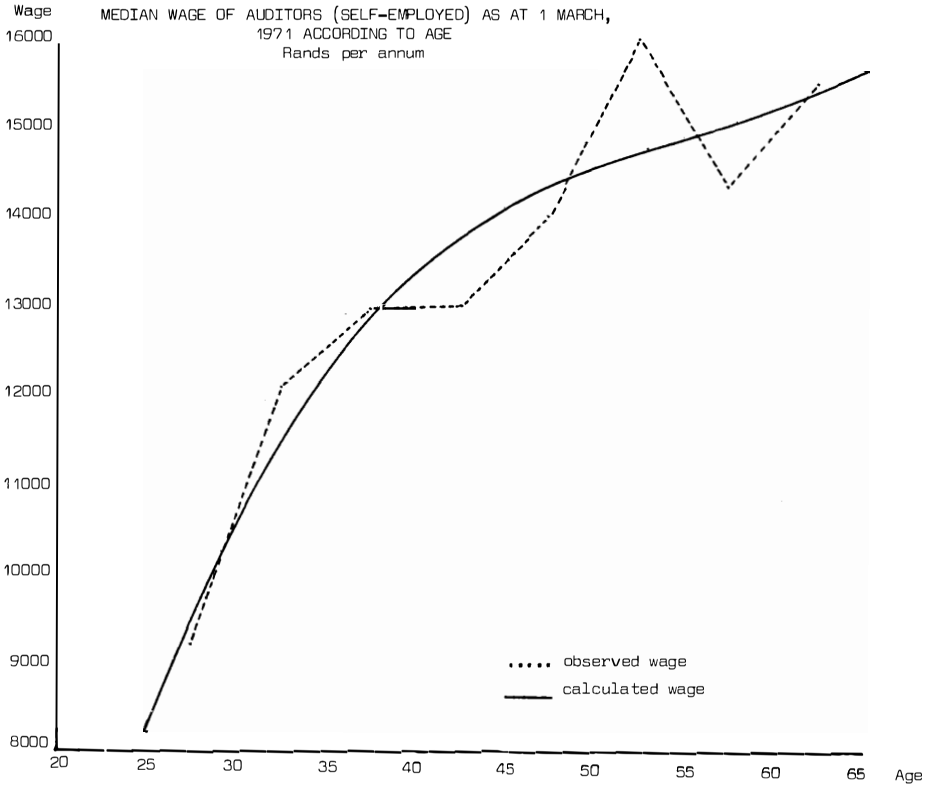


TABLE 8.2

REGRESSION VALUES OF THE MEDIAN WAGES ACCORDING TO AGE, OCCUPATIONAL STATUS AND PROFESSION
Rands per annum

Employees

| Age | Engineer | Architect | Quantity surveyor | Surveyor | Veterinary surgeon | Gen. med. practitioner | Medical specialist | Dentist | Pharmacist | Attorney | Advocate | Auditor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 4055 | | 3074 | 8471 | 4685 | | | 4920 | 5006 | 4229 | | |
| 24 | 4397 | 5371 | 3746 | 8315 | 4805 | | | 5426 | 5065 | 4351 | 3041 | 5059 |
| 25 | 4721 | 5629 | 4353 | 8172 | 4933 | 5848 | | 5883 | 5134 | 4484 | 3677 | 5302 |
| 26 | 5028 | 5873 | 4899 | 8044 | 5068 | 6013 | | 6296 | 5211 | 4627 | 4272 | 5532 |
| 27 | 5318 | 6105 | 5386 | 7928 | 5211 | 6181 | | 6665 | 5295 | 4781 | 4827 | 5749 |
| 28 | 5592 | 6323 | 5819 | 7825 | 5360 | 6353 | | 6993 | 5386 | 4943 | 5343 | 5954 |
| 29 | 5850 | 6529 | 6200 | 7734 | 5513 | 6527 | | 7282 | 5481 | 5113 | 5822 | 6146 |
| 30 | 6092 | 6721 | 6533 | 7655 | 5669 | 6702 | 6908 | 7535 | 5581 | 5291 | 6263 | 6326 |
| 31 | 6320 | 6902 | 6820 | 7587 | 5828 | 6877 | 7371 | 7754 | 5685 | 5474 | 6668 | 6495 |
| 32 | 6532 | 7069 | 7066 | 7530 | 5989 | 7053 | 7792 | 7940 | 5791 | 5663 | 7039 | 6651 |
| 33 | 6731 | 7225 | 7272 | 7484 | 6150 | 7228 | 8174 | 8096 | 5898 | 5856 | 7376 | 6797 |
| 34 | 6916 | 7369 | 7444 | 7447 | 6311 | 7401 | 8517 | 8225 | 6006 | 6052 | 7680 | 6931 |
| 35 | 7087 | 7500 | 7583 | 7421 | 6470 | 7572 | 8824 | 8327 | 6113 | 6251 | 7953 | 7054 |
| 36 | 7246 | 7620 | 7693 | 7403 | 6626 | 7739 | 9096 | 8406 | 6219 | 6451 | 8195 | 7166 |
| 37 | 7393 | 7728 | 7778 | 7395 | 6778 | 7903 | 9337 | 8464 | 6323 | 6652 | 8408 | 7268 |
| 38 | 7528 | 7824 | 7840 | 7395 | 6926 | 8062 | 9547 | 8503 | 6423 | 6853 | 8593 | 7360 |
| 39 | 7651 | 7909 | 7884 | 7402 | 7067 | 8216 | 9728 | 8525 | 6520 | 7052 | 8750 | 7442 |
| 40 | 7764 | 7983 | 7911 | 7418 | 7202 | 8364 | 9884 | 8532 | 6611 | 7250 | 8881 | 7514 |
| 41 | 7865 | 8046 | 7926 | 7441 | 7329 | 8505 | 10015 | 8526 | 6696 | 7444 | 8987 | 7576 |
| 42 | 7957 | 8098 | 7931 | 7470 | 7446 | 8638 | 10123 | 8510 | 6773 | 7634 | 9068 | 7629 |
| 43 | 8040 | 8139 | 7930 | 7506 | 7554 | 8763 | 10211 | 8486 | 6843 | 7820 | 9127 | 7673 |
| 44 | 8113 | 8169 | 7926 | 7548 | 7650 | 8879 | 10280 | 8456 | 6904 | 8000 | 9163 | 7708 |
| 45 | 8177 | 8189 | 7922 | 7595 | 7734 | 8984 | 10332 | 8421 | 6955 | 8173 | 9179 | 7734 |
| 46 | 8233 | 8198 | 7923 | 7647 | 7805 | 9080 | 10370 | 8386 | 6995 | 8338 | 9175 | 7752 |
| 47 | 8282 | 8197 | 7930 | 7704 | 7862 | 9163 | 10395 | 8350 | 7023 | 8495 | 9151 | 7762 |
| 48 | 8323 | 8186 | 7947 | 7765 | 7903 | 9235 | 10410 | 8318 | 7038 | 8643 | 9111 | 7764 |
| 49 | 8357 | 8165 | 7977 | 7830 | 7927 | 9294 | 10415 | 8290 | 7040 | 8780 | 9053 | 7758 |
| 50 | 8384 | 8135 | 8024 | 7899 | 7935 | 9339 | 10414 | 8270 | 7026 | 8906 | 8980 | 7744 |
| 51 | 8406 | 8094 | 8091 | 7970 | 7923 | 9370 | 10407 | 8258 | 6998 | 9019 | 8892 | 7723 |
| 52 | 8422 | 8044 | 8181 | 8045 | 7892 | 9386 | 10398 | 8258 | 6952 | 9120 | 8791 | 7696 |
| 53 | 8433 | 7985 | 8297 | 8121 | 7841 | 9386 | 10387 | 8272 | 6889 | 9207 | 8677 | 7661 |
| 54 | 8440 | 7917 | 8443 | 8199 | 7768 | 9369 | 10378 | 8301 | 6808 | 9278 | 8552 | 7620 |
| 55 | 8442 | 7839 | 8622 | 8278 | 7672 | 9335 | 10371 | 8349 | 6707 | 9334 | 8417 | 7572 |
| 56 | 8441 | 7752 | 8837 | 8359 | 7552 | 9283 | 10369 | 8416 | 6585 | 9374 | 8272 | 7519 |
| 57 | 8436 | 7657 | 9091 | 8440 | 7407 | 9211 | 10374 | 8506 | 6442 | 9395 | 8119 | 7459 |
| 58 | 8429 | 7553 | 9388 | 8521 | 7236 | 9121 | 10388 | 8621 | 6277 | 9398 | 7959 | 7394 |
| 59 | 8419 | 7440 | 9731 | 8601 | 7039 | 9010 | 10413 | 8762 | 6089 | 9381 | 7793 | 7323 |
| 60 | 8407 | 7320 | 10123 | 8681 | 6813 | 8877 | 10450 | 8932 | 5876 | 9344 | 7622 | 7247 |
| 61 | 8394 | 7190 | 10567 | 8760 | 6558 | 8723 | 10501 | 9133 | 5639 | 9286 | 7447 | 7167 |
| 62 | 8379 | 7053 | 11067 | 8837 | 6273 | 8546 | 10569 | 9367 | 5375 | 9205 | 7269 | 7081 |
| 63 | 8365 | 6908 | 11626 | 8913 | 5957 | 8346 | 10656 | 9637 | 5084 | 9102 | 7089 | 6991 |
| 64 | 8350 | 6755 | 12247 | 8985 | 5609 | 8122 | 10763 | 9945 | 4765 | 8974 | 6909 | 6897 |
| 65 | 8335 | 6594 | 12933 | 9055 | 5227 | 7873 | 10892 | 10292 | 4417 | 8821 | 6728 | 6798 |

TABLE 8.2 (CONTINUED)

Self-employed persons

| Age | Engineer | Architect | Quantity surveyor | Surveyor | Veterinary surgeon | Gen. med. practitioner | Medical specialist | Dentist | Pharmacist | Attorney | Advocate | Auditor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 12931 | | 13773 | 10811 | 6129 | | | 9589 | 8235 | 6901 | | |
| 24 | 12560 | 5433 | 13335 | 10723 | 6372 | | | 9888 | 7963 | 7441 | 205 | 7689 |
| 25 | 12262 | 5967 | 12966 | 10646 | 6590 | 14714 | | 10159 | 7752 | 7948 | 1992 | 8241 |
| 26 | 12032 | 6478 | 12664 | 10580 | 6785 | 14449 | | 10404 | 7596 | 8423 | 3622 | 8762 |
| 27 | 11867 | 6967 | 12423 | 10523 | 6959 | 14213 | | 10624 | 7493 | 8866 | 5101 | 9252 |
| 28 | 11762 | 7433 | 12241 | 10475 | 7113 | 14006 | | 10820 | 7437 | 9279 | 6434 | 9713 |
| 29 | 11712 | 7879 | 12114 | 10435 | 7249 | 13825 | | 10992 | 7426 | 9663 | 7629 | 10147 |
| 30 | 11712 | 8304 | 12038 | 10403 | 7369 | 13668 | 14392 | 11142 | 7456 | 10018 | 8691 | 10553 |
| 31 | 11758 | 8709 | 12010 | 10378 | 7475 | 13534 | 14652 | 11271 | 7522 | 10345 | 9627 | 10932 |
| 32 | 11846 | 9095 | 12026 | 10359 | 7568 | 13421 | 14936 | 11380 | 7622 | 10645 | 10444 | 11287 |
| 33 | 11970 | 9462 | 12081 | 10346 | 7649 | 13327 | 15241 | 11470 | 7751 | 10920 | 11147 | 11618 |
| 34 | 12127 | 9812 | 12174 | 10338 | 7721 | 13251 | 15562 | 11541 | 7905 | 11169 | 11743 | 11926 |
| 35 | 12312 | 10144 | 12299 | 10334 | 7785 | 13190 | 15896 | 11596 | 8081 | 11393 | 12238 | 12212 |
| 36 | 12519 | 10459 | 12453 | 10334 | 7843 | 13142 | 16238 | 11634 | 8275 | 11594 | 12639 | 12477 |
| 37 | 12746 | 10759 | 12633 | 10336 | 7897 | 13106 | 16586 | 11657 | 8483 | 11773 | 12952 | 12722 |
| 38 | 12986 | 11043 | 12835 | 10341 | 7947 | 12081 | 16935 | 11666 | 8701 | 11930 | 13183 | 12948 |
| 39 | 13236 | 11313 | 13055 | 10348 | 7996 | 13063 | 17281 | 11663 | 8926 | 12065 | 13338 | 13156 |
| 40 | 13491 | 11568 | 13289 | 10356 | 8046 | 13052 | 17620 | 11647 | 9154 | 12181 | 13425 | 13347 |
| 41 | 13747 | 11811 | 13534 | 10364 | 8098 | 13045 | 17949 | 11620 | 9380 | 12278 | 13449 | 13522 |
| 42 | 13998 | 12040 | 13787 | 10371 | 8154 | 13041 | 18263 | 11584 | 9602 | 12356 | 13416 | 13683 |
| 43 | 14241 | 12258 | 14042 | 10378 | 8215 | 13038 | 18559 | 11538 | 9815 | 12416 | 13333 | 13830 |
| 44 | 14470 | 12464 | 14298 | 10382 | 8283 | 13035 | 18833 | 11485 | 10015 | 12460 | 13207 | 13964 |
| 45 | 14682 | 12659 | 14550 | 10385 | 8361 | 13028 | 19081 | 11424 | 10200 | 12488 | 13043 | 14086 |
| 46 | 14871 | 12845 | 14794 | 10384 | 8448 | 13017 | 19299 | 11358 | 10364 | 12501 | 12848 | 14197 |
| 47 | 15033 | 13021 | 15028 | 10380 | 8548 | 12999 | 19483 | 11287 | 10504 | 12500 | 12629 | 14299 |
| 48 | 15164 | 13188 | 15246 | 10372 | 8662 | 12974 | 19630 | 11213 | 10617 | 12486 | 12390 | 14392 |
| 49 | 15259 | 13347 | 15446 | 10358 | 8791 | 12938 | 19735 | 11135 | 10698 | 12459 | 12140 | 14478 |
| 50 | 15313 | 13498 | 15623 | 10339 | 8937 | 12891 | 19795 | 11056 | 10745 | 12421 | 11885 | 14556 |
| 51 | 15322 | 13643 | 15775 | 10313 | 9102 | 12830 | 19805 | 10977 | 10752 | 12372 | 11629 | 14629 |
| 52 | 15282 | 13781 | 15897 | 10280 | 9288 | 12754 | 19763 | 10897 | 10716 | 12313 | 11381 | 14698 |
| 53 | 15187 | 13914 | 15986 | 10240 | 9496 | 12660 | 19663 | 10819 | 10634 | 12246 | 11146 | 14763 |
| 54 | 15034 | 14043 | 16038 | 10191 | 9728 | 12547 | 19502 | 10743 | 10501 | 12170 | 10930 | 14825 |
| 55 | 14817 | 14166 | 16049 | 10134 | 9985 | 12414 | 19277 | 10671 | 10314 | 12087 | 10741 | 14886 |
| 56 | 14532 | 14287 | 16017 | 10066 | 10270 | 12257 | 18983 | 10603 | 10070 | 11997 | 10584 | 14947 |
| 57 | 14175 | 14404 | 15936 | 9989 | 10583 | 12077 | 18617 | 10541 | 9763 | 11902 | 10465 | 15007 |
| 58 | 13741 | 14519 | 15804 | 9900 | 10927 | 11870 | 18174 | 10485 | 9391 | 11802 | 10391 | 15070 |
| 59 | 13225 | 14633 | 15616 | 9800 | 11303 | 11634 | 17651 | 10437 | 8950 | 11699 | 10369 | 15135 |
| 60 | 12623 | 14745 | 15370 | 9687 | 11713 | 11369 | 17044 | 10397 | 8435 | 11592 | 10404 | 15203 |
| 61 | 11931 | 14858 | 15061 | 9561 | 12158 | 11072 | 16349 | 10367 | 7843 | 11483 | 10503 | 15277 |
| 62 | 11143 | 14970 | 14686 | 9422 | 12641 | 10742 | 15562 | 10347 | 7171 | 11373 | 10672 | 15355 |
| 63 | 10255 | 15084 | 14241 | 9268 | 13162 | 10376 | 14679 | 10339 | 6414 | 11263 | 10918 | 15441 |
| 64 | 9263 | 15199 | 13722 | 9099 | 13724 | 9973 | 13697 | 10344 | 5569 | 11153 | 11247 | 15534 |
| 65 | 8163 | 15317 | 13126 | 8915 | 14329 | 9531 | 12612 | 10362 | 4632 | 11044 | 11665 | 15636 |

It would appear from Table 8.2 and Figures 8.1 to 8.24 that the form of only 13 of the wage/age curves of the 24 groups corresponds approximately with the type of curve which is regarded as "normal" for wage/age curves, viz an initial positive slope up to approximately 40–50 years, followed by an eventual negative slope (see, among others, Terblanche 4, 11 Woytinski 5,446 and Blaug 6, 4).

Apart from the initial negative slope in the curves for self-employed surveyors, quantity surveyors and pharmacists, these three also follow the so-called normal pattern. However, the initial negative slope is due to the manner in which the fitting technique modifies later decreases in the observed wages.

In the case of self-employed architects, veterinary surgeons and auditors as well as employed dentists, medical specialists, quantity surveyors and, for all practical purposes, surveyors as well, it would appear that, according to Table 8.2 and Figures 8.1 to 8.24, that the curves rise throughout their occupational careers. However, such a phenomenon in a developing or growing national economy in the case of highly specialised occupations can certainly not be rejected out of hand as being abnormal. It may be that the demand for the services of the workers concerned has increased to such an extent in the recent past that it has either cancelled or at least delayed the decrease which usually begins to appear between the ages of 40 and 50 years. In some cases, the number of followers of the seven professions at the higher ages is so small that the wage rates concerned must be assessed with circumspection, especially in the case of employed surveyors where the exclusion of two outlying wage returns in the 60–65 year age group caused the last phase of the curve to rise instead of fall.

The only curve which is apparently altogether unacceptable at a first glance is that for self-employed general medical practitioners which falls continuously from the beginning to the end (see Figure 8.18). There are, however, a number of possible explanations for the unusual progress of the curve. Firstly, it may be that the younger medical practitioners are not yet fully aware of their actual costs, with the result that they over-estimate their net profit. Secondly, it is possible that young medical practitioners work so hard that they do not have the time to keep abreast of new developments in their particular fields and consequently lose patients as they grow older. A third possibility is that they are not able to work as hard or such long hours as younger doctors as they grow older. A further possibility is that their income from other sources (interest and dividends) increases to such an extent as the years go by

that they are able to maintain their total income in spite of the fact that they have considerably fewer patients and work much shorter hours, thus earning a much lower income from their profession than previously. The progressive taxation scales of the Republic of South Africa, in the last instance, cause leisure time for workers in the higher income groups to become so cheap, by virtue of the fact that so little income is surrendered after taxation when their taxable income has decreased, that it is possible that general medical practitioners will attach increasing value to leisure time as they grow older and consequently do less and less work. This will particularly be the case if their income from other sources should increase at the same time. However, unless it is assumed that in their early professional years they work more hours per week, on the average, than the followers of all other professions, none of the above-mentioned reasons explain why the phenomenon is found among general medical practitioners only.

In the light of the fact that the wage figures concerned are based on the returns received from a relatively large number of self-employed general practitioners (459), the curve will be accepted as being descriptive of the wage expectations of a typical self-employed general medical practitioner.

The expected wage receipt flow for a seventeen-year-old male person who has just matriculated, will train for one of the twelve professions and will then pursue the profession in his own practice or the service of an employer until the end of his 65th year was calculated on the basis of the data in Tables 7.1 to 8.2.

An analysis of the 24 calculated wage receipt flows without taking income tax into account appears in Table 8.3.

The wage receipts in Table 8.3 were calculated by adding the incomes (Tables 7.4 and 8.2) together and subtracting the costs and forfeited incomes (Tables 7.2 and 7.3) from this amount.

## 8.3 THE INFLUENCE OF INCOME TAX ON THE CALCULATED WAGE RECEIPT FLOWS

As can be seen in Tables 8.2 and 8.3, there are considerable differences in the wages which the followers of the various professions can earn in the same year of life. It is also known that the income tax scales of the Republic of South Africa are extremely progressive.

TABLE 8.3

CALCULATED WAGE RECEIPTS (POSITIVE AND NEGATIVE) BEFORE DEDUCTION OF INCOME TAX ACCORDING TO PROFESSION, AGE AND OCCUPATIONAL STATUS

Rands per annum

| | Employees | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | Engineer | Architect | Quantity surveyor | Surveyor | Veterinary surgeon | Gen. med. practitioner | Medical specialist | Dentist | Pharmacist | Attorney | Advocate | Auditor |
| 18 | -1790 | -1770 | -1770 | -1790 | -1770 | -1770 | -1770 | -1770 | -1770 | -1050 | -1740 | - 220 |
| 19 | -1910 | -1890 | -1890 | -1910 | -1980 | -1970 | -1970 | -1980 | -1890 | - 930 | -1860 | - 100 |
| 20 | -2030 | -2010 | - 450 | -2030 | -2100 | -2090 | -2090 | -2100 | -2010 | - 810 | -1980 | 1820 |
| 21 | -2150 | -2130 | 1830 | -2150 | -2220 | -2210 | -2210 | -2220 | -2130 | - 690 | -2910 | 2060 |
| 22 | -2270 | -2250 | 2430 | 3600 | -2340 | -2330 | -2330 | -2340 | - 240 | - 360 | -3060 | 2300 |
| 23 | 4055 | 4200 | 3074 | 8471 | 4685 | -2450 | -2450 | 4920 | 5006 | 4229 | -3210 | 2900 |
| 24 | 4397 | 5371 | 3746 | 8315 | 4805 | 4050 | 4050 | 5426 | 5065 | 4351 | 3041 | 5059 |
| 25 | 4721 | 5629 | 4353 | 8172 | 4933 | 5848 | - 148 | 5883 | 5134 | 4484 | 3677 | 5302 |
| 26 | 5028 | 5873 | 4899 | 8044 | 5068 | 6013 | - 153 | 6296 | 5211 | 4627 | 4272 | 5532 |
| 27 | 5318 | 6105 | 5386 | 7928 | 5211 | 6181 | 6160 | 6665 | 5295 | 4781 | 4827 | 5749 |
| 28 | 5592 | 6323 | 5819 | 7825 | 5360 | 6353 | 6590 | 6993 | 5386 | 4943 | 5343 | 5954 |
| 29 | 5850 | 6529 | 6200 | 7734 | 5513 | 6527 | 6890 | 7282 | 5481 | 5113 | 5822 | 6146 |
| 30 | 6092 | 6721 | 6533 | 7655 | 5669 | 6702 | 6908 | 7535 | 5581 | 5291 | 6263 | 6326 |
| 31 | 6320 | 6902 | 6820 | 7587 | 5828 | 6877 | 7371 | 7754 | 5685 | 5474 | 6668 | 6495 |
| 32 | 6532 | 7069 | 7066 | 7530 | 5989 | 7053 | 7792 | 7940 | 5791 | 5663 | 7039 | 6651 |
| 33 | 6731 | 7225 | 7272 | 7484 | 6150 | 7228 | 8174 | 8096 | 5898 | 5856 | 7376 | 6797 |
| 34 | 6916 | 7369 | 7444 | 7447 | 6311 | 7401 | 8517 | 8225 | 6006 | 6052 | 7680 | 6931 |
| 35 | 7087 | 7500 | 7583 | 7421 | 6470 | 7572 | 8824 | 8327 | 6113 | 6251 | 7953 | 7054 |
| 36 | 7246 | 7620 | 7693 | 7403 | 6626 | 7739 | 9096 | 8406 | 6219 | 6451 | 8195 | 7166 |
| 37 | 7393 | 7728 | 7778 | 7395 | 6778 | 7903 | 9337 | 8464 | 6323 | 6652 | 8408 | 7268 |
| 38 | 7528 | 7824 | 7840 | 7395 | 6926 | 8062 | 9547 | 8503 | 6423 | 6853 | 8593 | 7360 |
| 39 | 7651 | 7909 | 7894 | 7402 | 7067 | 8216 | 9728 | 8525 | 6520 | 7052 | 8750 | 7442 |
| 40 | 7764 | 7983 | 7911 | 7418 | 7202 | 8364 | 9884 | 8532 | 6611 | 7250 | 8881 | 7514 |
| 41 | 7865 | 8046 | 7926 | 7441 | 7329 | 8505 | 10015 | 8526 | 6696 | 7444 | 8987 | 7576 |
| 42 | 7957 | 8098 | 7931 | 7470 | 7446 | 8638 | 10123 | 8510 | 6773 | 7634 | 9068 | 7629 |
| 43 | 8040 | 8139 | 7930 | 7506 | 7554 | 8763 | 10211 | 8486 | 6843 | 7820 | 9127 | 7673 |
| 44 | 8113 | 8169 | 7926 | 7548 | 7650 | 8879 | 10280 | 8456 | 6904 | 8000 | 9163 | 7708 |
| 45 | 8177 | 8189 | 7922 | 7595 | 7734 | 8984 | 10332 | 8421 | 6955 | 8173 | 9179 | 7734 |
| 46 | 8233 | 8198 | 7923 | 7647 | 7805 | 9080 | 10370 | 8386 | 6995 | 8338 | 9175 | 7752 |
| 47 | 8282 | 8197 | 7930 | 7704 | 7862 | 9163 | 10395 | 8350 | 7023 | 8495 | 9151 | 7762 |
| 48 | 8323 | 8186 | 7947 | 7765 | 7903 | 9235 | 10410 | 8318 | 7038 | 8643 | 9111 | 7764 |
| 49 | 8357 | 8165 | 7977 | 7830 | 7927 | 9294 | 10415 | 8290 | 7040 | 8780 | 9053 | 7758 |
| 50 | 8384 | 8135 | 8024 | 7899 | 7935 | 9339 | 10414 | 8270 | 7026 | 8906 | 8980 | 7744 |
| 51 | 8406 | 8094 | 8091 | 7970 | 7923 | 9370 | 10407 | 8258 | 6998 | 9019 | 8892 | 7723 |
| 52 | 8422 | 8044 | 8181 | 8045 | 7892 | 9386 | 10398 | 8258 | 6952 | 9120 | 8791 | 7696 |
| 53 | 8433 | 7985 | 8297 | 8121 | 7841 | 9386 | 10387 | 8272 | 6889 | 9207 | 8677 | 7661 |
| 54 | 8440 | 7917 | 8443 | 8199 | 7768 | 9369 | 10378 | 8301 | 6808 | 9278 | 8552 | 7620 |
| 55 | 8442 | 7839 | 8622 | 8278 | 7672 | 9335 | 10371 | 8349 | 6707 | 9334 | 8417 | 7572 |
| 56 | 8441 | 7752 | 8837 | 8359 | 7552 | 9283 | 10369 | 8416 | 6585 | 9374 | 8272 | 7519 |
| 57 | 8436 | 7657 | 9091 | 8440 | 7407 | 9211 | 10374 | 8506 | 6442 | 9395 | 8119 | 7459 |
| 58 | 8429 | 7553 | 9388 | 8521 | 7236 | 9121 | 10388 | 8621 | 6277 | 9398 | 7959 | 7394 |
| 59 | 8419 | 7440 | 9731 | 8601 | 7039 | 9010 | 10413 | 8762 | 6089 | 9381 | 7793 | 7323 |
| 60 | 8407 | 7320 | 10123 | 8681 | 6813 | 8877 | 10450 | 8932 | 5876 | 9344 | 7622 | 7247 |
| 61 | 8394 | 7190 | 10567 | 8760 | 6558 | 8723 | 10501 | 9133 | 5639 | 9286 | 7447 | 7167 |
| 62 | 8379 | 7053 | 11067 | 8837 | 6273 | 8546 | 10569 | 9367 | 5375 | 9205 | 7269 | 7081 |
| 63 | 8365 | 6908 | 11626 | 8913 | 5957 | 8346 | 10656 | 9637 | 5084 | 9102 | 7089 | 6991 |
| 64 | 8350 | 6755 | 12247 | 8985 | 5609 | 8122 | 10763 | 9945 | 4765 | 8974 | 6909 | 6897 |
| 65 | 8335 | 6594 | 12933 | 9055 | 5227 | 7873 | 10892 | 10292 | 4417 | 8821 | 6728 | 6798 |

TABLE 8.3 (CONTINUED)

Self-employed persons

| Age | Engineer | Architect | Quantity surveyor | Surveyor | Veterinary surgeon | Gen. med. practitioner | Medical specialist | Dentist | Pharmacist | Attorney | Advocate | Auditor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | -1790 | -1770 | -1770 | -1790 | -1770 | -1770 | -1770 | -1770 | -1770 | -1050 | -1740 | - 220 |
| 19 | -1910 | -1890 | -1890 | -1910 | -1980 | -1970 | -1970 | -1980 | -1890 | - 930 | -1860 | - 100 |
| 20 | -2030 | -2010 | - 450 | -2030 | -2100 | -2090 | -2090 | -2100 | -2010 | - 810 | -1980 | 1820 |
| 21 | -2150 | -2130 | 1830 | -2150 | -2220 | -2210 | -2210 | -2220 | -2130 | - 690 | -2910 | 2060 |
| 22 | -2270 | -2250 | 2430 | 3600 | -2340 | -2330 | -2330 | -2340 | - 240 | - 360 | -3060 | 2300 |
| 23 | 12931 | 4200 | 13773 | 10811 | 6129 | -2450 | -2450 | 9589 | 8235 | 6901 | -3210 | 2900 |
| 24 | 12560 | 5433 | 13335 | 10723 | 6372 | 4050 | 4050 | 9888 | 7963 | 7441 | 205 | 7689 |
| 25 | 12262 | 5967 | 12966 | 10646 | 6590 | 14714 | - 148 | 10159 | 7752 | 7948 | 1992 | 8241 |
| 26 | 12032 | 6478 | 12664 | 10580 | 6785 | 14449 | - 153 | 10404 | 7596 | 8423 | 3622 | 8762 |
| 27 | 11857 | 6957 | 12423 | 10523 | 6959 | 14213 | 6160 | 10624 | 7493 | 8866 | 5101 | 9252 |
| 28 | 11762 | 7433 | 12241 | 10475 | 7113 | 14006 | 6590 | 10820 | 7437 | 9279 | 6434 | 9713 |
| 29 | 11712 | 7879 | 12114 | 10435 | 7249 | 13825 | 6890 | 10992 | 7426 | 9663 | 7629 | 10147 |
| 30 | 11712 | 8304 | 12038 | 10403 | 7369 | 13668 | 14392 | 11142 | 7456 | 10018 | 8691 | 10553 |
| 31 | 11758 | 8709 | 12010 | 10378 | 7475 | 13534 | 14652 | 11271 | 7522 | 10345 | 9627 | 10932 |
| 32 | 11846 | 9095 | 12026 | 10359 | 7568 | 13421 | 14936 | 11380 | 7622 | 10645 | 10444 | 11287 |
| 33 | 11970 | 9462 | 12081 | 10346 | 7649 | 13327 | 15241 | 11470 | 7751 | 10920 | 11147 | 11618 |
| 34 | 12127 | 9812 | 12174 | 10338 | 7721 | 13251 | 15562 | 11541 | 7905 | 11169 | 11743 | 11926 |
| 35 | 12312 | 10144 | 12299 | 10334 | 7785 | 13190 | 15896 | 11596 | 8081 | 11393 | 12238 | 12212 |
| 36 | 12519 | 10459 | 12453 | 10334 | 7843 | 13142 | 16238 | 11634 | 8275 | 11594 | 12639 | 12477 |
| 37 | 12746 | 10759 | 12633 | 10336 | 7897 | 13106 | 16586 | 11657 | 8483 | 11773 | 12952 | 12722 |
| 38 | 12986 | 11043 | 12835 | 10341 | 7947 | 13081 | 16935 | 11666 | 8701 | 11930 | 13183 | 12948 |
| 39 | 13236 | 11313 | 13055 | 10348 | 7996 | 13063 | 17281 | 11663 | 8926 | 12065 | 13338 | 13156 |
| 40 | 13491 | 11568 | 13289 | 10356 | 8046 | 13052 | 17620 | 11647 | 9154 | 12181 | 13425 | 13347 |
| 41 | 13747 | 11811 | 13534 | 10364 | 8098 | 13045 | 17949 | 11620 | 9380 | 12278 | 13449 | 13522 |
| 42 | 13998 | 12040 | 13787 | 10371 | 8154 | 13041 | 18263 | 11584 | 9602 | 12356 | 13416 | 13683 |
| 43 | 14241 | 12258 | 14042 | 10378 | 8215 | 13038 | 18559 | 11538 | 9815 | 12416 | 13333 | 13830 |
| 44 | 14470 | 12464 | 14298 | 10382 | 8283 | 13035 | 18833 | 11485 | 10015 | 12460 | 13207 | 13964 |
| 45 | 14682 | 12659 | 14550 | 10385 | 8361 | 13028 | 19081 | 11424 | 10200 | 12488 | 13043 | 14086 |
| 46 | 14871 | 12845 | 14794 | 10384 | 8448 | 13017 | 19299 | 11358 | 10364 | 12501 | 12848 | 14197 |
| 47 | 15033 | 13021 | 15028 | 10380 | 8548 | 12999 | 19483 | 11287 | 10504 | 12500 | 12629 | 14299 |
| 48 | 15164 | 13188 | 15246 | 10372 | 8662 | 12974 | 19630 | 11213 | 10617 | 12486 | 12390 | 14392 |
| 49 | 15259 | 13347 | 15446 | 10358 | 8791 | 12938 | 19735 | 11135 | 10698 | 12459 | 12140 | 14478 |
| 50 | 15313 | 13498 | 15623 | 10339 | 8937 | 12891 | 19795 | 11056 | 10745 | 12421 | 11885 | 14556 |
| 51 | 15322 | 13643 | 15775 | 10313 | 9102 | 12830 | 19805 | 10977 | 10752 | 12372 | 11629 | 14629 |
| 52 | 15282 | 13781 | 15897 | 10280 | 9288 | 12754 | 19763 | 10897 | 10716 | 12313 | 11361 | 14698 |
| 53 | 15187 | 13914 | 15986 | 10240 | 9496 | 12660 | 19663 | 10819 | 10634 | 12246 | 11146 | 14763 |
| 54 | 15034 | 14043 | 16038 | 10191 | 9728 | 12547 | 19502 | 10743 | 10501 | 12170 | 10930 | 14825 |
| 55 | 14817 | 14166 | 16049 | 10134 | 9985 | 12414 | 19277 | 10671 | 10314 | 12087 | 10741 | 14886 |
| 56 | 14532 | 14287 | 16017 | 10066 | 10270 | 12257 | 18983 | 10603 | 10070 | 11997 | 10584 | 14947 |
| 57 | 14175 | 14404 | 15936 | 9989 | 10583 | 12077 | 18617 | 10541 | 9763 | 11902 | 10465 | 15007 |
| 58 | 13741 | 14519 | 15804 | 9900 | 10927 | 11870 | 18174 | 10485 | 9391 | 11802 | 10391 | 15070 |
| 59 | 13225 | 14633 | 15616 | 9800 | 11303 | 11634 | 17651 | 10437 | 8950 | 11699 | 10369 | 15135 |
| 60 | 12623 | 14745 | 15370 | 9687 | 11713 | 11369 | 17044 | 10397 | 8435 | 11592 | 10404 | 15203 |
| 61 | 11931 | 14858 | 15061 | 9561 | 12158 | 11072 | 16349 | 10367 | 7843 | 11483 | 10503 | 15277 |
| 62 | 11143 | 14970 | 14686 | 9422 | 12641 | 10742 | 15562 | 10347 | 7171 | 11373 | 10672 | 15355 |
| 63 | 10255 | 15084 | 14241 | 9268 | 13162 | 10376 | 14679 | 10339 | 6414 | 11263 | 10918 | 15441 |
| 64 | 9263 | 15199 | 13722 | 9099 | 13724 | 9973 | 13697 | 10344 | 5569 | 11153 | 11247 | 15534 |
| 65 | 8163 | 15317 | 13126 | 8915 | 14329 | 9531 | 12612 | 10362 | 4632 | 11044 | 11665 | 15636 |

Progressive scales of taxation result in the fact that a large percentage of the difference between the incomes of two persons can be wiped out by the payment of income tax. If, for example, the first has a professional career of 36 years and earns a high wage, as in the case of a medical specialist in this investigation, and the second person has a professional career of 43 years with considerably lower wages, as in the case of an attorney in this investigation, the total wage of the first person throughout his entire professional career will be much less than that of the second after deduction of income tax, although their total wages were more or less the same before tax was deducted.

It is thus deemed advisable to take income tax into account when the profitability, particularly the relative profitability of the twelve professions, is calculated. After consultations with officials of the office of the Secretary of Inland Revenue it was decided to calculate income tax on the basis of the annual PAYE deductions made in 1972. It was assumed for this purpose that all followers of the twelve professions enter into matrimony in their 24th year, that they all have two children, the first of whom is born when his father is 26 years of age and the second when the parent is 28. It was also assumed that all children will be dependent on their parents for 23 years so that rebates on income tax can be claimed for each child for this period. The expected wage receipt flows, after income tax has been taken into account, for a 17-year-old person who, under the same circumstances mentioned in par. 8.2 might enter each of the twelve professions and remain there until the conclusion of his 65th year appear in Table 8.4.

## 9 THE CASH VALUE OF THE EXPECTED WAGE RECEIPT FLOWS

### 9.1 THE DISCOUNT RATE

The rate of interest at which an expected income flow is discounted can make a great difference to the size of its cash value. It is for this reason that a discount rate is always a contentious matter. The fact should be borne in mind that a choice must be made on a matter, the actual outcome of which will only be known with certainty in 48 years' time. In addition, fault can be found for one reason or another, with literally any rate which is chosen.

Since the choice of a discount rate in a study of this kind is, however, essential, it was decided, after consultations with a number of monetary experts, that 6 per cent per annum will be regarded as a reasonable rate at which the expected income

TABLE B.4

CALCULATED WAGE RECEIPTS (POSITIVE AND NEGATIVE) AFTER DEDUCTION OF INCOME TAX, ACCORDING TO PROFESSION, AGE AND OCCUPATIONAL STATUS

Rands per annum

Employees

| Age | Engineer | Architect | Quantity surveyor | Surveyor | Veterinary surgeon | Gen. med. practitioner | Medical specialist | Dentist | Pharmacist | Attorney | Advocate | Auditor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | -1682 | -1662 | -1662 | -1682 | -1662 | -1662 | -1662 | -1662 | -1662 | - 948 | -1632 | - 202 |
| 19 | -1790 | -1770 | -1770 | -1790 | -1860 | -1850 | -1850 | -1860 | -1770 | - 646 | -1740 | - 100 |
| 20 | -1898 | -1878 | - 426 | -1898 | -1968 | -1958 | -1958 | -1968 | -1878 | - 738 | -1848 | 1637 |
| 21 | -1967 | -1947 | 1632 | -1967 | -2037 | -2027 | -2027 | -2037 | -1947 | - 597 | -2616 | 1840 |
| 22 | -2072 | -2052 | 2144 | 3164 | -2142 | -2132 | -2132 | -2142 | - 174 | - 282 | -2744 | 2051 |
| 23 | 3528 | 3655 | 2717 | 6548 | 4053 | -2230 | -2230 | 3236 | 4300 | 3676 | -2870 | 2560 |
| 24 | 4012 | 4832 | 3445 | 7092 | 4360 | 3712 | 3712 | 4877 | 4584 | 3966 | 2825 | 4578 |
| 25 | 4289 | 5045 | 3968 | 6990 | 4475 | 5227 | - 120 | 5255 | 4646 | 4086 | 3381 | 4772 |
| 26 | 4616 | 5311 | 4507 | 7005 | 4648 | 5425 | - 144 | 5663 | 4767 | 4269 | 3959 | 5033 |
| 27 | 4857 | 5499 | 4918 | 6915 | 4767 | 5566 | 5527 | 5951 | 4842 | 4404 | 4442 | 5214 |
| 28 | 5151 | 5748 | 5338 | 6941 | 4952 | 5769 | 5969 | 6294 | 4978 | 4605 | 4944 | 5442 |
| 29 | 5369 | 5918 | 5651 | 6873 | 5080 | 5916 | 6212 | 6520 | 5057 | 4745 | 5341 | 5607 |
| 30 | 5562 | 6073 | 5922 | 6807 | 5213 | 6054 | 6220 | 6722 | 5140 | 4898 | 5698 | 5751 |
| 31 | 5745 | 6214 | 6153 | 6762 | 5347 | 6199 | 6588 | 6881 | 5229 | 5050 | 6030 | 5893 |
| 32 | 5921 | 6349 | 6346 | 6717 | 5477 | 6333 | 6919 | 7032 | 5318 | 5207 | 6329 | 6013 |
| 33 | 6083 | 6474 | 6510 | 6681 | 5611 | 6477 | 7191 | 7137 | 5410 | 5368 | 6593 | 6139 |
| 34 | 6228 | 6586 | 6651 | 6654 | 5736 | 6608 | 7444 | 7229 | 5485 | 5522 | 6832 | 6243 |
| 35 | 6367 | 6697 | 6758 | 6628 | 5868 | 6747 | 7670 | 7307 | 5574 | 5686 | 7032 | 6334 |
| 36 | 6495 | 6783 | 6845 | 6610 | 5998 | 6878 | 7873 | 7360 | 5661 | 5849 | 7212 | 6426 |
| 37 | 6610 | 6867 | 6905 | 6612 | 6120 | 6995 | 8043 | 7405 | 5748 | 6014 | 7362 | 6506 |
| 38 | 6715 | 6940 | 6956 | 6612 | 6238 | 7103 | 8192 | 7430 | 5830 | 6175 | 7506 | 6577 |
| 39 | 6803 | 7001 | 6987 | 6609 | 6347 | 7220 | 8313 | 7452 | 5909 | 6332 | 7623 | 6649 |
| 40 | 6891 | 7062 | 7003 | 6625 | 6451 | 7332 | 8424 | 7459 | 5983 | 6499 | 7713 | 6701 |
| 41 | 6968 | 7098 | 7018 | 6648 | 6557 | 7432 | 8509 | 7453 | 6058 | 6651 | 7793 | 6751 |
| 42 | 7036 | 7139 | 7023 | 6667 | 6653 | 7538 | 8584 | 7437 | 6115 | 6797 | 7845 | 6792 |
| 43 | 7092 | 7167 | 7022 | 6693 | 6729 | 7623 | 8640 | 7427 | 6176 | 6936 | 7891 | 6825 |
| 44 | 7141 | 7186 | 7018 | 6735 | 6813 | 7711 | 8692 | 7397 | 6216 | 7079 | 7913 | 6847 |
| 45 | 7194 | 7206 | 7014 | 6770 | 6873 | 7790 | 8728 | 7375 | 6256 | 7190 | 7929 | 6873 |
| 46 | 7237 | 7215 | 7015 | 6810 | 6921 | 7857 | 8749 | 7354 | 6296 | 7318 | 7925 | 6879 |
| 47 | 7273 | 7214 | 7022 | 6843 | 6965 | 7913 | 8774 | 7330 | 6313 | 7436 | 7901 | 6889 |
| 48 | 7303 | 7203 | 7039 | 6892 | 6995 | 7971 | 8771 | 7298 | 6328 | 7543 | 7875 | 6891 |
| 49 | 7222 | 7085 | 6951 | 6841 | 6914 | 7902 | 8653 | 7184 | 6252 | 7538 | 7721 | 6780 |
| 50 | 7249 | 7069 | 6985 | 6897 | 6922 | 7932 | 8652 | 7164 | 6238 | 7619 | 7678 | 6779 |
| 51 | 7156 | 6940 | 6937 | 6843 | 6809 | 7831 | 8480 | 7049 | 6137 | 7589 | 7508 | 6664 |
| 52 | 7172 | 6904 | 6999 | 6905 | 6792 | 7847 | 8519 | 7049 | 6091 | 7660 | 7436 | 6650 |
| 53 | 7183 | 6858 | 7088 | 6953 | 6754 | 7847 | 8508 | 7063 | 6052 | 7716 | 7352 | 6615 |
| 54 | 7190 | 6803 | 7193 | 7017 | 6695 | 7830 | 8499 | 7078 | 5983 | 7772 | 7258 | 6588 |
| 55 | 7192 | 6751 | 7313 | 7069 | 6626 | 7814 | 8492 | 7126 | 5904 | 7813 | 7167 | 6552 |
| 56 | 7191 | 6679 | 7468 | 7123 | 6532 | 7777 | 8490 | 7166 | 5813 | 7835 | 7063 | 6510 |
| 57 | 7186 | 6611 | 7646 | 7190 | 6424 | 7720 | 8495 | 7227 | 5702 | 7856 | 6951 | 6463 |
| 58 | 7179 | 6533 | 7849 | 7242 | 6315 | 7661 | 8509 | 7312 | 5567 | 7859 | 6832 | 6422 |
| 59 | 7169 | 6457 | 8076 | 7292 | 6166 | 7580 | 8486 | 7407 | 5422 | 7842 | 6720 | 6364 |
| 60 | 7157 | 6361 | 8335 | 7356 | 5988 | 7493 | 8523 | 7532 | 5248 | 7823 | 6590 | 6326 |
| 61 | 7158 | 6282 | 8586 | 7405 | 5786 | 7383 | 8537 | 7673 | 5055 | 7780 | 6464 | 6259 |
| 62 | 7143 | 6169 | 8919 | 7468 | 5563 | 7267 | 8588 | 7828 | 4836 | 7714 | 6321 | 6197 |
| 63 | 7129 | 6060 | 9295 | 7513 | 5309 | 7123 | 8637 | 8016 | 4603 | 7642 | 6205 | 6130 |
| 64 | 7127 | 5942 | 9710 | 7570 | 5025 | 6954 | 8708 | 8224 | 4327 | 7559 | 6061 | 6060 |
| 65 | 7112 | 5822 | 10175 | 7610 | 4715 | 6773 | 8806 | 8450 | 4025 | 7452 | 5925 | 5985 |

TABLE 8.4 (CONTINUED)

Self-employed persons

| Age | Engineer | Architect | Quantity surveyor | Surveyor | Veterinary surgeon | Gen. med. practitioner | Medical specialist | Dentist | Pharmacist | Attorney | Advocate | Auditor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | - 1682 | -1662 | -1662 | -1682 | -1662 | -1662 | -1662 | -1662 | -1662 | - 948 | -1632 | - 202 |
| 19 | -1790 | -1770 | -1770 | -1790 | -1860 | -1850 | -1850 | -1860 | -1770 | - 846 | -1740 | - 100 |
| 20 | -1898 | -1878 | - 426 | -1898 | -1968 | -1958 | -1958 | -1968 | -1878 | - 738 | -1848 | 1637 |
| 21 | -1967 | -1947 | 1632 | -1967 | -2037 | -2027 | -2027 | -2037 | -1947 | - 597 | -2616 | 1840 |
| 22 | -2072 | -2052 | 2144 | 3164 | -2142 | -2132 | -2132 | -2142 | - 174 | - 282 | -2744 | 2051 |
| 23 | 9165 | 3655 | 9596 | 7978 | 5103 | -2230 | -2230 | 7258 | 6442 | 5609 | -2870 | 2560 |
| 24 | 9697 | 4884 | 10396 | 8686 | 5642 | 3712 | 3712 | 8183 | 6836 | 6458 | 205 | 6643 |
| 25 | 9707 | 5319 | 10160 | 8645 | 5818 | 11218 | - 120 | 8353 | 6679 | 6834 | 1918 | 7047 |
| 26 | 9633 | 5804 | 9989 | 8765 | 6049 | 11076 | - 144 | 8542 | 6682 | 7275 | 3387 | 7520 |
| 27 | 9527 | 6190 | 9856 | 8726 | 6182 | 10922 | 5527 | 8791 | 6603 | 7595 | 4673 | 7860 |
| 28 | 9612 | 6540 | 9911 | 8820 | 6383 | 10892 | 5969 | 9050 | 6644 | 8000 | 5841 | 8298 |
| 29 | 9582 | 6982 | 9824 | 8796 | 6498 | 10803 | 6212 | 9169 | 6633 | 8263 | 6792 | 8608 |
| 30 | 9582 | 7284 | 9789 | 8764 | 6586 | 10715 | 11111 | 9263 | 6653 | 8512 | 7577 | 8865 |
| 31 | 9608 | 7582 | 9761 | 8757 | 6672 | 10650 | 11224 | 9307 | 6709 | 8741 | 8243 | 9126 |
| 32 | 9676 | 7872 | 9777 | 8738 | 6743 | 10583 | 11385 | 9379 | 6785 | 8940 | 8805 | 9323 |
| 33 | 9740 | 8122 | 9811 | 8742 | 6812 | 10534 | 11538 | 9433 | 6878 | 9114 | 9268 | 9525 |
| 34 | 9837 | 8367 | 9865 | 8734 | 6860 | 10480 | 11704 | 9485 | 6997 | 9242 | 9613 | 9717 |
| 35 | 9942 | 8605 | 9950 | 8730 | 6912 | 10462 | 11907 | 9522 | 7122 | 9392 | 9908 | 9882 |
| 36 | 10070 | 8804 | 10024 | 8730 | 6959 | 10435 | 12090 | 9541 | 7266 | 9520 | 10147 | 10048 |
| 37 | 10211 | 9005 | 10141 | 8732 | 7000 | 10399 | 12277 | 9545 | 7424 | 9623 | 10310 | 10187 |
| 38 | 10344 | 9201 | 10257 | 8737 | 7039 | 10396 | 12465 | 9554 | 7574 | 9721 | 10455 | 10328 |
| 39 | 10487 | 9332 | 10370 | 8744 | 7075 | 10378 | 12643 | 9551 | 7744 | 9795 | 10545 | 10428 |
| 40 | 10630 | 9494 | 10518 | 8735 | 7098 | 10367 | 12812 | 9554 | 7904 | 9872 | 10587 | 10554 |
| 41 | 10771 | 9641 | 10650 | 8743 | 7139 | 10381 | 12995 | 9527 | 8071 | 9929 | 10611 | 10638 |
| 42 | 10907 | 9791 | 10788 | 8750 | 7171 | 10377 | 13131 | 9510 | 8218 | 9966 | 10578 | 10730 |
| 43 | 11034 | 9909 | 10928 | 8757 | 7219 | 10374 | 13273 | 9482 | 8370 | 10007 | 10540 | 10808 |
| 44 | 11140 | 10035 | 11067 | 8761 | 7274 | 10371 | 13419 | 9448 | 8509 | 10031 | 10458 | 10873 |
| 45 | 11254 | 10146 | 11196 | 8764 | 7329 | 10364 | 13538 | 9405 | 8645 | 10059 | 10379 | 10948 |
| 46 | 11345 | 10267 | 11317 | 8763 | 7402 | 10332 | 13649 | 9357 | 8743 | 10052 | 10270 | 11014 |
| 47 | 11433 | 10357 | 11428 | 8759 | 7475 | 10357 | 13726 | 9323 | 8833 | 10071 | 10137 | 11068 |
| 48 | 11486 | 10460 | 11543 | 8751 | 7548 | 10332 | 13791 | 9268 | 8912 | 10057 | 10000 | 11111 |
| 49 | 11531 | 10408 | 11653 | 8612 | 7549 | 10156 | 13843 | 9089 | 8846 | 9870 | 9700 | 11084 |
| 50 | 11563 | 10501 | 11743 | 8610 | 7650 | 10130 | 13876 | 9028 | 8876 | 9854 | 9545 | 11121 |
| 51 | 11572 | 10589 | 11830 | 8453 | 7642 | 10077 | 13859 | 8861 | 8697 | 9781 | 9298 | 11173 |
| 52 | 11554 | 10669 | 11908 | 8438 | 7782 | 10020 | 13844 | 8811 | 8679 | 9740 | 9133 | 11223 |
| 53 | 11503 | 10745 | 11953 | 8417 | 7925 | 9962 | 13798 | 8749 | 8633 | 9709 | 8981 | 11247 |
| 54 | 11415 | 10834 | 11983 | 8385 | 8073 | 9902 | 13717 | 8706 | 8537 | 9651 | 8829 | 11288 |
| 55 | 11280 | 10895 | 11994 | 8346 | 8247 | 9805 | 13627 | 8652 | 8454 | 9603 | 8704 | 11328 |
| 56 | 11118 | 10976 | 11962 | 8296 | 8428 | 9702 | 13492 | 8602 | 8300 | 9549 | 8603 | 11369 |
| 57 | 10904 | 11031 | 11925 | 8251 | 8602 | 9593 | 13305 | 8577 | 8092 | 9470 | 8520 | 11388 |
| 58 | 10648 | 11105 | 11836 | 8195 | 8826 | 9456 | 13093 | 8540 | 7852 | 9404 | 8512 | 11429 |
| 59 | 10324 | 11177 | 11736 | 8129 | 9072 | 9303 | 12819 | 8510 | 7550 | 9351 | 8490 | 11472 |
| 60 | 9942 | 11249 | 11599 | 8048 | 9349 | 9121 | 12528 | 8518 | 7185 | 9278 | 8477 | 11497 |
| 61 | 9499 | 11300 | 11420 | 7957 | 9639 | 8924 | 12156 | 8488 | 6756 | 9202 | 8539 | 11549 |
| 62 | 8978 | 11371 | 11211 | 7867 | 9960 | 8705 | 11704 | 8487 | 6263 | 9125 | 8653 | 11584 |
| 63 | 8413 | 11443 | 10950 | 7762 | 10280 | 8497 | 11204 | 8479 | 6431 | 9048 | 8817 | 11648 |
| 64 | 7757 | 11515 | 10629 | 7654 | 10631 | 8235 | 10623 | 8484 | 4994 | 8972 | 9049 | 11698 |
| 65 | 6981 | 11567 | 10264 | 7515 | 10997 | 7943 | 9931 | 8483 | 4214 | 8913 | 9317 | 11756 |

flow will be discounted. All further discussions will thus be based on the cash values which have been calculated at six per cent per annum.

However, the 24 expected wage receipt flows were also discounted, both prior to and after deduction of income tax, at 0, 2, 4, 8, 10, 12, 14 and 16 per cent per annum for the sake of those persons who are of the opinion that six per cent per annum is an unrealistic rate. The calculated cash values appear in Tables 9.1 and 9.2 (see par. 6.2 for formula).

Particular attention is drawn to the cash values which were calculated at 0 per cent per annum. These are simply the total of the 48 flows of expected wage receipts according to calculated median values, both positive and negative (costs), which were added together. By comparing the cash value at 0 per cent with the other cash values, one can perceive the influence which the discount rate exerts on these values.

## 9.2 THE PROFITABILITY OF THE TWELVE PROFESSIONS AS AT 1 MARCH, 1971

An analysis of the profitability of the twelve occupations according to occupational status (i.e. employees or self-employed persons) on the strength of the cash value of the expected wage receipt flow, both prior to and after deduction of income tax, of a prospective follower of each of the professions for a period extending from his 18th to his 65th year, discounted at the rate of six per cent per annum, appears in Table 9.3.

An indication is also given in Table 9.3 of the percentage of the calculated pre-taxation cash value which each profession has to pay in income tax. The data in Table 9.3 are also presented in the form of graphs in Figures 9.1 and 9.2.

In Table 9.4 the twelve professions are arranged in order of profitability, on the basis of the cash values appearing in Table 9.3.

According to Tables 9.3 and 9.4, it would appear that, in the case of self-employed persons, the profession of quantity surveying is the most remunerative. However, since the building industry is one of those which is most subject to fluctuations in the business cycle, it can be expected that this profession will not continue to maintain its position as the most remunerative one for the next 48 years. There might perhaps be times during which the profession may become one of the least remunerative.

TABLE 9.1

CASH VALUES BEFORE DEDUCTION OF INCOME TAX, ACCORDING TO VARIOUS DISCOUNT RATES, PROFESSION AND OCCUPATIONAL STATUS

Rands

| Profession | Cash value | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0% | 2% | 4% | 6% | 8% | 10% | 12% | 14% | 16% |
| **Employees** | | | | | | | | | |
| Engineer | 309900 | 179776 | 110189 | 70850 | 47378 | 32656 | 22994 | 16398 | 11738 |
| Architect | 305453 | 181347 | 113686 | 74692 | 50992 | 35867 | 25784 | 18802 | 13808 |
| Quantity surveyor | 342131 | 198840 | 123371 | 81154 | 56099 | 40384 | 30020 | 22880 | 17774 |
| Surveyor | 338516 | 205030 | 132616 | 90787 | 65109 | 48438 | 37065 | 28970 | 23001 |
| Veterinary surgeon | 278093 | 163768 | 101660 | 66055 | 44555 | 30931 | 21912 | 15709 | 11299 |
| General medical practitioner | 329107 | 189790 | 115169 | 73001 | 47906 | 32240 | 22029 | 15118 | 10287 |
| Medical specialist | 366028 | 206141 | 121607 | 74553 | 47040 | 30209 | 19487 | 12412 | 7603 |
| Dentist | 340424 | 200400 | 125035 | 82017 | 56041 | 39525 | 28531 | 20920 | 15473 |
| Pharmacist | 255904 | 153324 | 97010 | 64345 | 44369 | 31540 | 22931 | 16928 | 12601 |
| Attorney | 318004 | 183436 | 112477 | 72931 | 49646 | 35201 | 25794 | 19398 | 14882 |
| Advocate | 307558 | 176849 | 106256 | 66160 | 42272 | 27409 | 17796 | 11366 | 6942 |
| Auditor | 306754 | 186523 | 121033 | 83235 | 60164 | 45331 | 35335 | 28317 | 23210 |
| **Self-employed persons** | | | | | | | | | |
| Engineer | 553150 | 335461 | 215814 | 146296 | 103665 | 76178 | 57629 | 44604 | 35137 |
| Architect | 489669 | 278946 | 168309 | 106946 | 71024 | 48895 | 34609 | 24996 | 18289 |
| Quantity surveyor | 602231 | 363754 | 234745 | 160681 | 115606 | 86631 | 67056 | 53247 | 43137 |
| Surveyor | 434364 | 267845 | 175762 | 121674 | 88020 | 65954 | 50798 | 39969 | 31967 |
| Veterinary surgeon | 374989 | 215812 | 132393 | 85935 | 58461 | 41270 | 29953 | 22166 | 16606 |
| General medical practitioner | 512384 | 310793 | 199202 | 133831 | 93436 | 67243 | 49522 | 37093 | 28105 |
| Medical specialist | 637913 | 632858 | 216017 | 133777 | 85561 | 56076 | 37343 | 25036 | 16712 |
| Dentist | 460762 | 280585 | 181305 | 123284 | 87426 | 64116 | 48267 | 37072 | 28903 |
| Pharmacist | 368833 | 222125 | 141571 | 94894 | 66388 | 48102 | 35833 | 27267 | 21076 |
| Attorney | 479575 | 287179 | 182650 | 122552 | 86064 | 62765 | 47198 | 36376 | 28591 |
| Advocate | 431035 | 247526 | 148531 | 92374 | 58989 | 38290 | 24972 | 16128 | 10097 |
| Auditor | 563155 | 332900 | 210027 | 140588 | 99079 | 72926 | 55636 | 43711 | 35177 |

TABLE 9.2

CASH VALUES AFTER DEDUCTION OF INCOME TAX, ACCORDING TO VARIOUS DISCOUNT RATES, PROFESSION AND OCCUPATIONAL STATUS

Rands

| Profession | Cash value | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0% | 2% | 4% | 6% | 8% | 10% | 12% | 14% | 16% |
| **Employees** | | | | | | | | | |
| Engineer | 270992 | 157966 | 97240 | 62740 | 42056 | 29022 | 20433 | 14549 | 10380 |
| Architect | 268499 | 159747 | 100324 | 65991 | 45071 | 31687 | 22744 | 16541 | 12097 |
| Quantity surveyor | 295194 | 173117 | 108249 | 71648 | 49754 | 35926 | 26753 | 20405 | 15848 |
| Surveyor | 293860 | 178169 | 115177 | 78679 | 56226 | 41635 | 31680 | 24602 | 19390 |
| Veterinary surgeon | 246913 | 145782 | 90701 | 59032 | 39850 | 27659 | 19566 | 13987 | 10013 |
| General medical practitioner | 284271 | 164657 | 100318 | 63791 | 41950 | 28252 | 19285 | 13194 | 8923 |
| Medical specialist | 307203 | 173952 | 103106 | 63438 | 40106 | 25751 | 16558 | 10465 | 6305 |
| Dentist | 293160 | 172944 | 107974 | 70752 | 48206 | 33838 | 24261 | 17627 | 12879 |
| Pharmacist | 230043 | 138031 | 87433 | 58029 | 40011 | 28420 | 20629 | 15190 | 11266 |
| Attorney | 276959 | 161064 | 99541 | 65005 | 44522 | 31725 | 23339 | 17606 | 13539 |
| Advocate | 267696 | 154398 | 93066 | 58129 | 37243 | 24200 | 15732 | 10046 | 6119 |
| Auditor | 271755 | 165810 | 107938 | 74434 | 53921 | 40694 | 31757 | 25469 | 20884 |
| **Self-employed persons** | | | | | | | | | |
| Engineer | 432193 | 262017 | 168429 | 113977 | 80526 | 58919 | 44316 | 34050 | 26587 |
| Architect | 391814 | 225607 | 137543 | 88212 | 59034 | 40877 | 29042 | 21010 | 15362 |
| Quantity surveyor | 465426 | 282196 | 182656 | 125249 | 90152 | 67500 | 52146 | 41288 | 33326 |
| Surveyor | 361369 | 222374 | 145486 | 100322 | 72232 | 53830 | 41208 | 32204 | 25565 |
| Veterinary surgeon | 316971 | 184127 | 113795 | 74239 | 50638 | 35761 | 25909 | 19102 | 14227 |
| General medical practitioner | 404582 | 244288 | 155765 | 104029 | 72135 | 51502 | 37577 | 27835 | 20807 |
| Medical specialist | 465394 | 265283 | 158296 | 98206 | 62833 | 41095 | 27209 | 18035 | 11796 |
| Dentist | 376295 | 228859 | 147580 | 100059 | 70683 | 51585 | 38604 | 29439 | 22757 |
| Pharmacist | 314804 | 189811 | 121091 | 81187 | 56755 | 41040 | 30471 | 23078 | 17729 |
| Attorney | 389787 | 234553 | 149918 | 101057 | 71258 | 52142 | 39312 | 30355 | 23886 |
| Advocate | 348964 | 200701 | 120612 | 75090 | 47955 | 31078 | 20180 | 12916 | 7942 |
| Auditor | 442789 | 264423 | 168573 | 113980 | 81074 | 60167 | 46231 | 36545 | 29565 |

TABLE 9.3

CASH VALUE OF THE EXPECTED FLOWS OF WAGE RECEIPTS ACCORDING TO PROFESSION AND OCCUPATIONAL STATUS AT SIX PER CENT PER ANNUM

Rands

| Profession | Cash values of expected flows of wage receipts | | | | | |
|---|---|---|---|---|---|---|
| | Employees | | | Self-employed persons | | |
| | Before deduction of tax | After deduction of tax | % loss as a result of tax | Before deduction of tax | After deduction of tax | % loss as a result of tax |
| Engineer | 70850 | 62740 | 11,5 | 146296 | 113977 | 22,1 |
| Architect | 74692 | 65991 | 11,7 | 106946 | 88212 | 17,5 |
| Quantity surveyor | 81154 | 71648 | 11,7 | 160681 | 125249 | 22,1 |
| Surveyor | 90787 | 78679 | 13,3 | 121674 | 100322 | 17,5 |
| Veterinary surgeon | 66055 | 59032 | 10,6 | 85935 | 74239 | 13,6 |
| General medical practitioner | 73001 | 63791 | 12,6 | 133831 | 104029 | 22,3 |
| Medical specialist | 74553 | 63438 | 14,9 | 133777 | 98206 | 26,6 |
| Dentist | 82017 | 70752 | 13,7 | 123284 | 100059 | 18,8 |
| Pharmacist | 64345 | 58029 | 9,8 | 94894 | 81187 | 14,4 |
| Attorney | 72931 | 65005 | 10,9 | 122552 | 101057 | 17,5 |
| Advocate | 66160 | 58129 | 12,1 | 92374 | 75090 | 18,7 |
| Auditor | 83235 | 74434 | 10,6 | 140588 | 113980 | 18,9 |

FIGURE 9.1

INFLUENCE OF INCOME TAX ON THE CASH VALUE OF THE EXPECTED WAGE RECEIPTS OF EMPLOYEES AT SIX PER CENT PER ANNUM ACCORDING TO PROFESSION

Rands 000

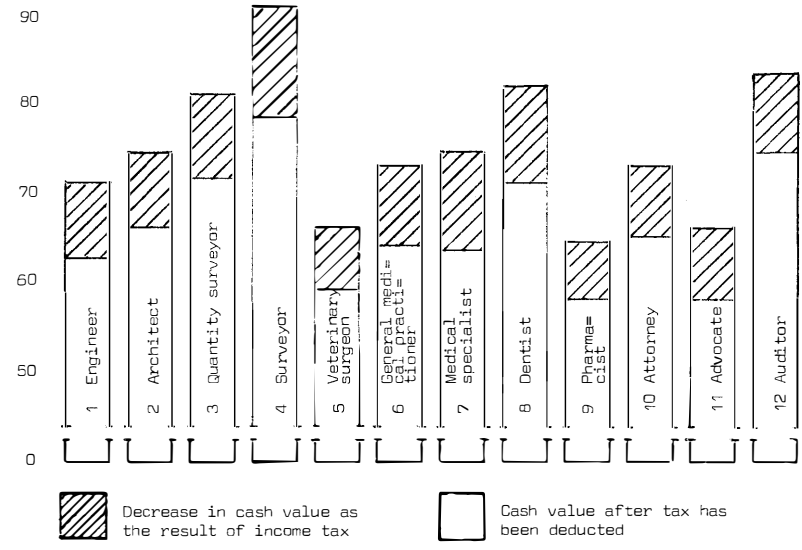


FIGURE 9.2

INFLUENCE OF INCOME TAX ON THE CASH VALUE OF THE EXPECTED INCOME FLOWS OF SELF-EMPLOYED PERSONS AT SIX PER CENT PER ANNUM ACCORDING TO PROFESSION

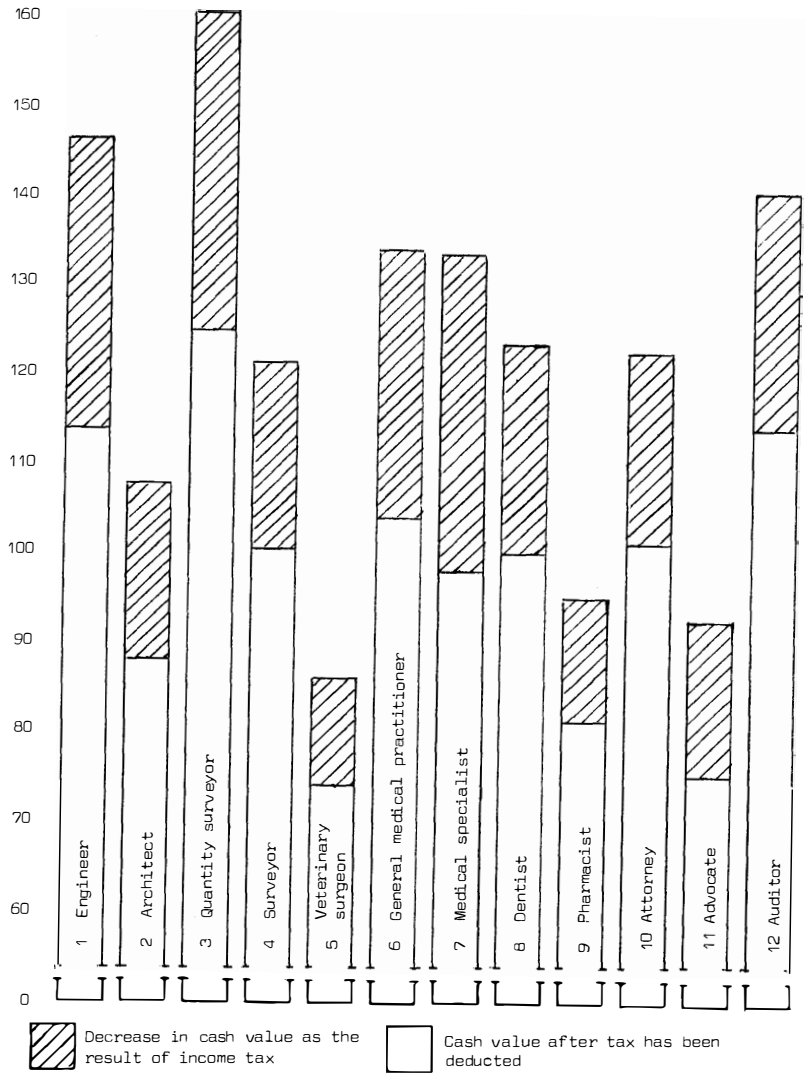


TABLE 9.4

RANK ORDER OF PROFITABILITY OF THE TWELVE PROFESSIONS ACCORDING TO OCCUPATIONAL STATUS

Rands

Employees

| Before deduction of tax | | | After deduction of tax | | |
|---|---|---|---|---|---|
| Rank order | Cash value | Profession | Rank order | Cash value | Profession |
| 1 | 90787 | Surveyor | 1 | 78679 | Surveyor |
| 2 | 83235 | Auditor | 2 | 74434 | Auditor |
| 3 | 82017 | Dentist | 3 | 71648 | Quantity surveyor |
| 4 | 81154 | Quantity surveyor | 4 | 70752 | Dentist |
| 5 | 74692 | Architect | 5 | 65991 | Architect |
| 6 | 74553 | Medical specialist | 6 | 65005 | Attorney |
| 7 | 73001 | Gen. med. practi=tioner | 7 | 63791 | Gen. med. practi=tioner |
| 8 | 72931 | Attorney | 8 | 63438 | Medical specialist |
| 9 | 70850 | Engineer | 9 | 62740 | Engineer |
| 10 | 66160 | Advocate | 10 | 59032 | Veterinary surgeon |
| 11 | 66055 | Veterinary surgeon | 11 | 58129 | Advocate |
| 12 | 64345 | Pharmacist | 12 | 58029 | Pharmacist |
| | | Self-employed persons | | | |
| 1 | 160681 | Quantity surveyor | 1 | 125249 | Quantity surveyor |
| 2 | 146296 | Engineer | 2 | 113980 | Auditor |
| 3 | 140588 | Auditor | 3 | 113977 | Engineer |
| 4 | 133831 | Gen. med. practi=tioner | 4 | 104029 | Gen. med. practi=tioner |
| 5 | 133777 | Medical specialist | 5 | 101057 | Attorney |
| 6 | 123284 | Dentist | 6 | 100322 | Surveyor |
| 7 | 122552 | Attorney | 7 | 100059 | Dentist |
| 8 | 121674 | Surveyor | 8 | 98206 | Medical specialist |
| 9 | 106946 | Architect | 9 | 88212 | Architect |
| 10 | 94894 | Pharmacist | 10 | 81187 | Pharmacist |
| 11 | 92374 | Advocate | 11 | 75090 | Advocate |
| 12 | 85935 | Veterinary surgeon | 12 | 74239 | Veterinary surgeon |

The other two professions among the three most remunera=tive ones are auditing and engineering. The engineering profes=sion is, of course, also one of those which as a result of its ties with the construction industry, is extremely subject to fluctuations in the business cycle. The auditing profession is, however, much less dependent on such fluctuations. The fact that

a building or construction company has a great deal of work or does practically nothing,does not, after all, make any difference to the auditor's income. The books and financial statements of the building or construction company still have to be audited. However, the incomes of the quantity surveyor and engineer will be affected to a great extent since they only receive many assignments when the building and construction industries flou= rish.

According to Tables 9.3 and 9.4, the professions pursued by pharmacists, advocates and veterinary surgeons were the three least remunerative ones. The income of veterinary surgeons is largely dependent on the income derived from farming which can naturally fluctuate a great deal as a result of the influence of the varying rainfall in the Republic of South Africa. It can consequently be expected that the incomes of veterinary surgeons will also fluctuate to a great extent. It is, however, not known whether they will rise to such an extent during prosperous farming years that the profession will attain a higher position in the order of profitability.

An extremely interesting phenomenon apparent from Tables 9.3 and 9.4 is the great difference made to the relative profita= bility of the self-employed followers of certain professions by income tax. Payment of income tax causes the relative profitabi= lity of the profession pursued by attorneys to rise by two places in the order while that of medical specialists falls by three. It would appear from Table 9.3 and Figure 9.2 that the cash value of the income flow of self-employed medical specia= lists decreases by 26,6 per cent as a result of the payment of income tax as against the 17,5 per cent of the self-employed attorneys.

It is also interesting to note that the self-employed quantity surveyors who, according to Table 9.4, occupy the high= est position in the order of earnings surrender only 22,1 per cent of the cash value of their total wages as a result of income tax (see Table 9.3 and Figure 9.2), as opposed to the 26,6 per cent of self-employed medical specialists who occupy the fifth position, prior to taxation, in the order of earnings.

In the case of employees, it appears from Tables 9.3 and 9.4 that the surveying and auditing professions are the two most remunerative ones, with dentistry in third place before income tax is taken into account and quantity surveying in third place if income tax is considered.

The three least remunerative professions, as in the case of self-employed persons, are those practised by veterinary surgeons, advocates and pharmacists although their order has undergone some change.

The relative profitability of the twelve professions, according to Tables 9.3 and 9.4 and Figure 9.1, is also affected by income tax in the case of employees. The rank occupied by medical specialists, for instance, drops by two places and that of dentists and advocates by one, while the rank of attorneys, quantity surveyors and veterinary surgeons rise by one place.

As in the case of their self-employed colleagues, medical specialists who, according to Table 9.4, occupy only the sixth position in the order of earnings, have to surrender the highest percentage (14,9%) of the cash value of their expected wage receipt flows as a result of income tax (see Table 9.3 and Figure 9.1). In contrast to this, surveyors, who occupy the highest position, and auditors, who are second in the order of earnings, surrender only 13,3 and 10,6 per cent respectively of the cash value of their expected wage receipt flows to income tax.

The differential effect of income tax on the profitability of the various professions, in the case of self-employed persons as well as employees, can be attributed to the combined functioning of three factors, viz the progressivity of income tax scales in the Republic of South Africa, the differences in the duration of training and consequently length of the professional career in the various professions (see Table 7.1) and thirdly, the fact that followers of professions with an under-average duration of professional career receive an above-average wage.

## 10 THE RELIABILITY OF THE CALCULATED CASH VALUES

If the market for the services of professional workers was perfectly competitive and if the wage, income and expenditure figures which were processed in this study, as well as the sample used in the gathering of the data, were entirely reliable, it can be expected that there would be a high correlation between the calculated cash values and the supply and demand situation in the labour market for the groups of professional workers concerned. It is thus theoretically possible to test the reliability of the calculated cash values by calculating the extent to which they correlate with the supply and demand situation.

However, the matter is, in practice, not quite as simple as it would appear to be at first glance, for the following reasons:

(a) The only practical method to quantify the supply and demand situation in a labour market is to determine the shortage (positive or negative) of the various groups of professional workers in the labour market concerned. However, the determination of the shortage of self-employed followers of any profession is unfortunately always a more or less arbitrary matter, (7,3). The shortages listed in the manpower surveys of the Department of Labour refer practically exclusively to employees. Virtually no account is taken of the self-employed persons and the surveys cannot thus be used as a criterion for actual shortages. It might, however be possible that the order of shortages, as recorded in the manpower surveys of the Department of Labour, will correspond with the order of actual totals but unknown shortages of followers of the twelve professions under discussion in this report.

(b) Since general medical practitioners and medical specialists are grouped together in the manpower surveys of the Department of Labour, there are only ten comparable professions in the manpower survey, with the result that the figures of the Department of Labour first had to be adjusted before they could be used in this study.

It is clear from the above that the method of determining shortages which is followed here is nothing more than a comparatively rough estimate of the actual shortages.

It should furthermore be borne in mind that labour markets are known for their imperfectness (9, 532-535 and 10, 403-404). Moreover, all the workers under discussion in this report find themselves in an oligopsonistic position on account of the legal protection which they enjoy, so that they are able, in one way or another, to interfere in the free functioning of the market mechanism in order to influence their wage levels. The outcome of this is that the wage levels used in this report, although they represent the actual wages earned by the workers concerned, cannot necessarily be regarded as the wage which will bring supply and demand into balance.

It is evident from the foregoing that one cannot really expect to find a particularly high correlation between the order of shortages of followers of the twelve professions and the calculated order of profitability. The correlations will nevertheless be calculated and indicated.

The eleven professions found in the manpower surveys of the Department of Labour are arranged in Table 10.1 firstly according to the order of numerical shortages and secondly in order of shortages as percentages of total job opportunities. This is

TABLE 10.1

SHORTAGES OF WHITE PROFESSIONAL WORKERS ACCORDING TO THE MANPOWER SURVEYS OF THE DEPARTMENT OF LABOUR

| Profession | Filled posts | Vacancies | Rank order according to number of vacancies | Job opportunity (Vacancies plus filled posts) | Vacancies as a percentage of job opportunity | Rank order according to percentage of vacancies |
|---|---|---|---|---|---|---|
| **Survey No. 8 30.4.1969** | | | | | | |
| Engineer | 11297 | 1167 | 1 | 12464 | 9,4 | 4 |
| Architect | 979 | 159 | 5 | 1138 | 14,0 | 2 |
| Quantity surveyor | 791 | 189 | 3 | 980 | 19,1 | 1 |
| Surveyor | 1462 | 123 | 6 | 1585 | 7,8 | 5 |
| Veterinary surgeon | 423 | 22 | 10 | 445 | 4,9 | 8 |
| Medical | 8114 | 1146 | 2 | 9260 | 12,3 | 3 |
| Dentist | 1098 | 70 | 9 | 1168 | 6,0 | 6 |
| Pharmacist | 2605 | 71 | 8 | 2675 | 2,6 | 10 |
| Attorney | 4064 | 80 | 7 | 4144 | 1,9 | 11 |
| Advocate | 307 | 13 | 11 | 320 | 4,1 | 9 |
| Auditor | 3242 | 184 | 4 | 3426 | 5,4 | 7 |
| **Survey No. 9 30.4.1971** | | | | | | |
| Engineer | 13766 | 1163 | 1 | 14929 | 7,8 | 6 |
| Architect | 1852 | 179 | 5 | 2031 | 8,8 | 5 |
| Quantity surveyor | 1645 | 261 | 3 | 1906 | 13,7 | 1 |
| Surveyor | 1894 | 210 | 4 | 2104 | 10,0 | 3 |
| Veterinary surgeon | 359 | 18 | 11 | 377 | 4,8 | 8 |
| Medical | 7838 | 918 | 2 | 8756 | 10,5 | 2 |
| Dentist | 1042 | 87 | 9 | 1129 | 7,7 | 7 |
| Pharmacist | 3895 | 144 | 6 | 4039 | 3,6 | 9 |
| Attorney | 4511 | 94 | 8 | 4605 | 2,0 | 11 |
| Advocate | 350 | 37 | 10 | 387 | 9,6 | 4 |
| Auditor | 4289 | 119 | 7 | 4408 | 2,7 | 10 |

done in respect of the shortages in both the 1969 and 1971 manpower surveys.

However, since the Department of Labour indicates only ten comparable professions as a result of the grouping together of general medical practitioners and medical specialists, it was necessary to alter the orders of shortages as indicated in Table 10.1 in order to make provision for twelve professional groups. This was done in Table 10.2.

TABLE 10.2

ADJUSTED RANK ORDERS ACCORDING TO SHORTAGES OF WHITE PROFESSIONAL WORKERS, BY NUMBERS AND PERCENTAGES

| Rank order according to number of vacancies | | Rank order according to percentage of vacancies | |
|---|---|---|---|
| Rank order according to Manpower Survey No. 8 of 30.4.1969 | | | |
| 1 | Engineer | 1 | Quantity surveyor |
| 2 | Gen. med. practitioner | 2 | Architect |
| 3 | Medical specialist | 3 | Gen. med. practitioner |
| 4 | Quantity surveyor | 4 | Medical specialist |
| 5 | Auditor | 5 | Engineer |
| 6 | Architect | 6 | Surveyor |
| 7 | Surveyor | 7 | Dentist |
| 8 | Attorney | 8 | Auditor |
| 9 | Pharmacist | 9 | Veterinary surgeon |
| 10 | Dentist | 10 | Advocate |
| 11 | Veterinary surgeon | 11 | Pharmacist |
| 12 | Advocate | 12 | Attorney |
| Rank order according to Manpower Survey No.9 30.4.1971 | | | |
| 1 | Engineer | 1 | Quantity surveyor |
| 2 | Gen. med. practitioner | 2 | Gen. med. practitioner |
| 3 | Medical specialist | 3 | Medical specialist |
| 4 | Quantity surveyor | 4 | Surveyor |
| 5 | Surveyor | 5 | Advocate |
| 6 | Architect | 6 | Architect |
| 7 | Pharmacist | 7 | Engineer |
| 8 | Auditor | 8 | Dentist |
| 9 | Attorney | 9 | Veterinary surgeon |
| 10 | Dentist | 10 | Pharmacist |
| 11 | Advocate | 11 | Auditor |
| 12 | Veterinary surgeon | 12 | Attorney |

The rank correlations between the profitability ranks and the shortage ranks appear in Table 10.3.

TABLE 10.3

RANK CORRELATION BETWEEN WAGE LEVEL AND SHORTAGES OF PROFESSIONAL WORKERS IN 1969 AND 1971

| Wage groups | Rank correlation of numerical shortages with wages | | | | | | Rank correlation of shortages as a percentage of job opportunities | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1969 | | | 1971 | | | 1969 | | | 1971 | | |
| | Rho | tn-1 | P | Rho | tn-1 | P | Rho | tn-1 | P | Rho | tn-1 | P |
| Self-employed persons before tax | 0,818 | 2,609 | 0,05-0,02 | 0,685 | 2,184 | 0,1-0,05 | 0,559 | 1,784 | 0,2-0,1 | 0,315 | 1,004 | 0,4-0,3 |
| Self-employed persons after tax | 0,713 | 2,274 | 0,05-0,02 | 0,612 | 1,952 | 0,1-0,05 | 0,420 | 1,338 | 0,3-0,2 | 0,182 | 0,580 | 0,6-0,5 |
| Employees before tax | 0,287 | 0,915 | 0,4 - 0,3 | 0,203 | 0,647 | 0,6-0,5 | 0,469 | 1,496 | 0,2-0,1 | 0,256 | 0,823 | 0,5-0,4 |
| Employees after tax | 0,259 | 0,825 | 0,5 - 0,4 | 0,154 | 0,491 | 0,7-0,6 | 0,406 | 1,294 | 0,3-0,2 | 0,154 | 0,491 | 0,7-0,6 |

The only correlation sigrificant at the five per cent level, according to Table 10,3 is that betweer the profitabili= ty rank of self-employed persons, both before and after income tax deductions, and the 1969 rank of numerical shortages.

In the light of the afore-mentioned reservatiors regarding these correlations, it is recommended that, for the present, no binding conclusions on the reliability of the calculated cash values be based on the correlations in Table 10.3 but that the calculations for the results of future surveys on wages and shortages be continued in order to determine whether any scien= tific rules can be perceived.

In the absence of another objective criterion for the as= sessment of the reliability of the calculated cash values, those persons who wish to use this information are advised not to do so before carefully taking into consideration the assumptions upon which they are based.

## 11 THE SIGNIFICANCE OF THE CALCULATED PROFITABILITY OF THE TWELVE PROFESSIONS

It must be strongly emphasised that the cash values cal= culated in this and other studies are nothing more than the quantification of the financial incomes and expenditures which can be expected to be earned in the direct pursuit of a profes= sion by an imaginary follower of each of the twelve professions, either as a self-employed person or as an employee. The expect= ed incomes in this investigation were, in turn, based on the median of the actual incomes of a group of followers of the pro= fessions concerned as at 1 March, 1971 and although it is highly improbable that the future incomes of the present and future followers of the same professions will remain unchanged, one can nevertheless expect that the relative incomes, as reflected by the differences in the cash values of the various professional income flows will remain approximately the same at any given mo= ment. However, the calculated cash values include only the fi= nancial incomes and expenditure and do not lay any claim to re= flecting the total extent of a person's prosperity.

If a person's actual prosperity were to be calculated, material and non-material assets, incomes and liabilities and costs and sacrifices would have to be taken into account. In this case, however, only the financial incomes, costs and sacri= fices were summated and discounted. When the total gain in prosperity (both material and non-material) which can be earned in the pursuit of a profession is calculated, the following fac= tors wil first have to be quantified and taken into consideration.

(a) The number of hours per annum which have to be devoted towards obtaining the particular qualifications and earning the incomes. The availability of spare time does, after all contribute towards a person's total prosperity.

(b) The distribution of the hours over the 24 hours of the day and the 168 hours of the week during which a person must be actively engaged in earning the calculated income. In the case of most people, not only the duration but also the distribution of their occupational activity contributes towards their prosperity.

(c) The information, contacts and opportunities obtained during the pursuit of a profession to earn additional income outside the profession in a safe and convenient manner,for example, by speculating with shares. It is, after all, not improbable that the followers of certain professions obtain information in the course of the pursuit of their professions by which they can gain, while followers of other professions never get such opportunities.

(d) The social status of the followers of various professions may, without any other contributory cause, differ widely in the eyes of the general public. Since a great number of people are today prepared to spend considerable amounts on status symbols, it is obvious that a person's occupation can contribute towards his total social status and consequently to his total prosperity as well. The status value of the profession should thus also be quantified and taken into consideration when the total contribution of a profession to the prosperity of the follower thereof is calculated.

(e) The ease with and costs at which a practice can be started and built up. The importance of this factor is apparent from the considerable differences in the incomes of employees and self-employed persons in the same profession.

A calculated cash value can never be regarded as an index of the popularity of an occupation unless the above-mentioned factors are not also taken into account. It is also assumed that there will be still other factors not mentioned here which may possibly have an important influence on the popularity and profitability of a profession.

The cash values calculated in this study and the profitability ranks based thereon should therefore never be assessed in isolation from and without consideration of the explanations given in Paragraphs 7, 8 and 10.

BIBLIOGRAPHY


1 FELDSTEIN, M.M. and FLEMMING, J.S. The Problems of time-stream evaluation : Present value versus internal rate of return. Bulletin of Economics and Statistics XXV1, 1964 : 79-85.

2 HIRSHLEIFER, J. On the theory of the optimal investment decision. Journal of Political Economy 66, 1964 : 329-352.

3 WILKENSON, B.W. Present values of lifetime earnings for different occupations. Journal of Political Economy 74, 1966 : 556-572.

4 TERBLANCHE, S.S. Die Verband tussen inkomsteverskille, beroep en onderwyspeil van ekonomiesbedrywige Blankes in 1960. Pretoria, Raad vir Geesteswetenskaplike Na=vorsing, 1971. Publikasie nr. MM 16.

5 WOYTINSKY, W.S. and ASSOCIATES. Employment and wages in the United States. New York, The Twentieth Century Fund, 1953.

6 BLAUG, M. The Utilization of educated manpower in in=dustry. London, Oliver and Boyd, 1967.

7 TERBLANCHE, S.S. The Demand for and supply of engineers, 1973 and 1980. Pretoria, Human Sciences Research Coun=cil, 1971. Publication No. MM 17.

8 EBERSOHN, D. Graduate manpower of South Africa. An Analysis of the National Register of Natural and Social Scientists as on 30 November 1970. Pretoria, Human Sciences Research Council, 1972. Publication No. MM 36.

9 PHELPS, O.W. Introduction to labor economics. New York, McGraw-Hill, 1955.

10 DAVIS, P. and MATCHETT, G.J. Modern labor economics. New York, The Ronald Press, 1954.

HUMAN SCIENCES RESEARCH COUNCIL

Telegrams: "RAGEN"
Telephone: 486562
Institute: Manpower Research

PRIVATE BAG 41,
PRETORIA.

Ref. N/2/2/6

Dear Sir/Madam,

THE SALARY STRUCTURE OF HIGHLY QUALIFIED MANPOWER

Why does one person earn more than another? What is the role of factors such as qualifications, occupation, occupational function, training, etc. in the origin of differences in income? These questions have important implications for manpower, especially when they have bearing on the highly qualified worker.

Because of your professional and/or academic qualifications you are among about 3 per cent of the white population who can be described as highly qualified. Your name is included in a sample of 40 000 persons drawn from the National Register of Natural and Social Scientists. The information necessary for answering the above questions will be gathered from this sample. Would you please complete the attached questionnaire and return it in the addressed envelope.

The information supplied is confidential and will be treated as such. Please do not write your name on the questionnaire. The number on the questionnaire is merely used to test, by means of a computer, the representativeness of the sample on the strength of such data as age, sex and qualifications which appear in the Register. The personnel who handle the questionnaire will not be able to link your name to the information supplied.

A report on this research will be published and the date will be announced in the press.

Your co-operation in this very important research project will be highly appreciated.

Yours faithfully,

W.U. Boshoff.

PRESIDENT

(n Afrikaanse vraelys is op aanvraag beskikbaar)

THE SALARY STRUCTURE OF HIGHLY QUALIFIED MANPOWER

Office use

1 WHAT IS YOUR PRESENT (1.3.1971) OCCUPATION? Please give a functional occupational description, irrespective of your qualifications, training and rank, for example "chemical engineer" and not "professional officer" "researcher", or "civil servant". 07 3-11

.....

..... 12-16

2 WHICH ONE OF THE STATEMENTS BELOW IS APPLICABLE TO YOU?

I am self-employed (including managing directors who own more than 50% of a company's shares). 1

I work for the Government or a provincial administration 2

I work for a local government (e.g. city of town council) 3

I work for a semi-government, government-controlled or government-subsidised organisation (e.g. CSIR, ISCOR, universities) 4

My employer is a member of the private sector (e.g. private firms, organisations, enterprises, etc.) 5 17

I am unemployed but seeking employment 6

I am voluntarily outside the labour market (e.g. housewives, students, retired persons) 7

None of the above. Please specify type of employer:

.....

..... 8

IF YOU ARE UNEMPLOYED OR VOLUNTARILY OUTSIDE THE LABOUR MARKET (THAT IS, IF YOU HAVE MARKED 6 OR 7 IN QUESTION 2 ABOVE), YOU NEED NOT COMPLETE THE REST OF THE QUESTIONNAIRE. PLEASE RETURN IT.

3 HOW MANY FULL YEARS OF WORKING EXPERIENCE HAVE YOU HAD

(a) SINCE THE COMMENCEMENT OF YOUR FIRST FULL-TIME JOB? years 18-19

(b) IN YOUR PRESENT OCCUPATION? years 20-21

Office use

4 WHICH ONE OF THE CATEGORIES LISTED BELOW BEST DESCRIBES THE FUNCTION TO WHICH YOU DEVOTE MOST OF YOUR WORKING TIME?

Managerial and administrative [1]

Research and development [2]

Planning and design [3]

Education and training [4]

Production and inspection [5]

Consulting, advisory and service [6]

Investigation, prediction and reporting [7]

None of the above [8]

5 WHICH ONE OF THE CATEGORIES LISTED BELOW IS THE MOST SUITABLE DESCRIPTION OF THE MOST IMPORTANT ACTIVITY OF YOUR EMPLOYER (OR YOURSELF IF YOU ARE YOUR OWN EMPLOYER)?

Forestry, agriculture and fishing [01]

Mining (including digging and quarrying) [02]

Electricity, gas and water supply (including generation, production purification and distribution) [03]

Building and construction [04] 23-24

Manufacturing (including production, processing and printing) [05]

Transport, storage and communication (SABC, SAR & H, postal services, SAA, etc.) [06]

Commerce and Trade (wholesale, retail, meat and motor) [07]

Financing (banks, building societies, IDC, etc.) [08]

Professional services (medical, juridical, engineering etc.) [09]

Other personal services (hotel-keeping, sport, entertainment, religious guidance, etc.) [10]

Protection services (police, defence force, prisons, traffic control, etc.) [11]

All other community and government services as rendered by ordinary civil service, provincial administration, local government (city and town councils), semi-government-, government-controlled or government-subsidised organisations (CSIR, National Parks Board, marketing control board, etc.) [12]

None of the above. Please specify type of employer:

..... [13]

6 WHAT IS YOUR GROSS SALARY PER ANNUM (1/3/1971)? Excluding overtime, bonuses, allowances and other fringe benefits (see question 7). Indicate only the salary received in connection with the direct practice of your present occupation. If you own your own business, indicate your your nett profit instead of gross salary. 25-30

R_____ per annum

7 WITH REGARD TO EACH OF THE FRINGE BENEFITS LISTED BELOW, PLEASE INDICATE WHETHER OR NOT YOU RECEIVE IT FROM YOUR EMPLOYER. IF YOU DO RECEIVE IT, WHAT, IN YOUR ESTIMATION, IS ITS AVERAGE ANNUAL VALUE FOR YOU AND YOUR FAMILY?

| Fringe benefit | Do you receive the fringe benefits? | | Average annual value | Office use |
|---|---|---|---|---|
| Free housing or board and lodging | NO | YES | R | 31 – 34 |
| Reduced housing rental or board and lodging at a reduced fee | NO | YES | R | 35 – 38 |
| Housing loans at a subsidised interest rate or at an interest rate that is substantially lower than the building society interest rate | NO | YES | R | 39 – 42 |
| Other loans at a reduced interest rate | NO | YES | R | 43 – 46 |
| Holiday, Christmas and other bonuses | NO | YES | R | 47 – 50 |
| Free or subsidised uniform or other clothing, or clothing or uniform allowance | NO | YES | R | 51 – 54 |
| Other allowances | NO | YES | R | 55 – 58 |
| Your employer's contribution to your pension or endowment plan | NO | YES | R | 59 – 62 |
| Your employer's contribution to your medical benefit society | NO | YES | R | 63 – 66 |
| Free or subsidised medical services, medicine or hospitalization | NO | YES | R | 67 – 70 |
| Free or subsidised motor-car for private use | NO | YES | R | 71 – 74 |
| Free or subsidised transport | NO | YES | R | M 13<br>78 – 80 |
| Other free or subsidised services e.g. university training | | | | 08<br>3 – 11<br>12 – 15<br>16 – 19 |
| Free goods (e.g. fuel or food) for private use | NO | YES | R | 20 – 23 |
| Discount on goods which were actually bought | NO | YES | R | 24 – 27 |
| Free or subsidised municipal rates and taxes | NO | YES | R | 28 – 31 |
| Free or subsidised use of telephone in private home | NO | YES | R | 32 – 35 |
| Taxes paid on your behalf | NO | YES | R | 36 – 39 |
| Insurance premiums paid on your behalf | NO | YES | R | 40 – 43 |
| Others (specify) ..... ..... | | | R | 44 – 47 |

Date completed _____ 1971

M 13
78–80

RGN-PUBLIKASIES/HSRC PUBLICATIONS

GESKIEDENIS/HISTORY

G-1/Van Dyk, J.H./Stamregister van die Eloffs in Suid-Afrika/1972/R2,50

Bronnepublikasie Nr. I/Oberholster, A.G./Dagboek van H.C. Bredell/1972/R3,20

INLIGTING/INFORMATION

Humanitas/Tydskrif vir Navorsing in die Geesteswetenskappe/Verskyn minstens twee keer per jaar
Humanitas/Journal for Research in the Human Sciences/Appears at least twice per annum

Nuusbrief/Maandelikse publikasie behalwe in Desember, met die jongste inligting oor navorsing deur die RGN/Gratis
Newsletter/Monthly publication, except in December, which contains the latest information on research by the HSRC/Gratis

Jaarverslag/Verskyn jaarliks
Annual Report/Published once a year

IN-4 /Waardebepaling van Suid-Afrikaanse en buitelandse opvoedkundige kwalifikasies/1972/RO,65
IN-5 /Evaluation of South African and foreign educational qualifications/1972/RO,65

IN-6 /Sauer, G. en Geggus, C./Gids van navorsingsorganisasies in die geesteswetenskappe in Suid-Afrika/1970/R1,15
IN-6 /Sauer, G. and Geggus, C./Directory of research organizations in the human sciences in South Africa/1970/R1,15

IN-8 /Stimie, C.M./Algemene inligting/1971/Gratis
IN-9 /Stimie, C.M./General information/1971/Gratis

IN-12/Geggus, C. en Stimie, C.M./Opleiding na standerd tien uitgesonderd universiteitsopleiding/1971/RO,90
IN-11/Geggus, C. and Stimie, C.M./Training after Standard Ten excluding university training/1971/RO,90

IN-13/Stimie, C.M./Education in the RSA/1970/RO,50

IN-14/Geggus, C./Toekennings beskikbaar vir nagraadse studie in die RSA en in die buiteland/1971/R2,15

IN-14/Geggus, C./Awards available for post-graduate study in the RSA and overseas/1971/R2,15

IN-15/Stimie, C.M., Caroline Geggus en Coetzee, C.J.S./Universiteitsopleiding en beroepsmoontlikhede/University training and career possibilities/1972/R2,15

IN-16/Stimie, C.M. and Caroline Geggus/University education in the RSA/1972/RO,70

KOMMUNIKASIE/COMMUNICATION

KOMM-1/Erasmus, P.F./Die radio as massakommunikasiemedium met spesiale verwysing na die situasie in Suid-Afrika/1970/Herdruk 1972/RO,95

KOMM-2/Erasmus, P.F./Beeldradio as massakommunikasiemedium met spesiale verwysing na die moontlike instelling van sodanige diens in Suid-Afrika/1971/R1,00

KOMM-5/Engelbrecht, J.C.R./Die pers as massakommunikasiemedium/1972/R3,60

MANNEKRAG/MANPOWER

MM-1 /Terblanche, S.S./Die vraag na en aanbod van stads- en streeksbeplanners/1969/RO,35
MM-1 /Terblanche, S.S./The supply of and demand for town and regional planners/1969/RO,35

MM-2 /Terblanche, S.S./Die vraag na en aanbod van medici/1969/RO,30
MM-2 /Terblanche, S.S./The demand for and supply of medical practitioners/1969/RO,30

MM-3 /Terblanche, S.S./Die beroepsomstandighede van 'n groep pasgegradueerdes/1969/RO,50
MM-3 /Terblanche, S.S./The occupational situation of a group of new graduates/1969/RO,50

MM-4 /Redelinghuys, H.J./'n Verkenningstudie oor die Bantoe-ondernemer in die Tswanatuisland/1970/RO,90
MM-4 /Redelinghuys, H.J./A pilot study of the Bantu entrepreneur in the Tswana homeland/1970/RO,90

MM-12/Ebersoh, D./Die nasionale register van natuur- en geestes-

wetenskaplikes soos op 30 September 1967/1970/Gratis

MM-17/Terblanche, S.S./Die vraag na en aanbod van ingenieurs, 1973 en 1980/1971/R1,50
MM-17/Terblanche, S.S./The demand for and supply of engineers, 1973 and 1980/1971/R1,50

MM-22/Wessels, D.M./Deeltydse werk vir getroude vroue/1971/R1,50
MM-22/Wessels, D.M./Part-time work for married women/1971/R1,50

MM-27/Boshoff, F./Die loonstruktuur van hooggekwalifiseerde Blanke werknemers soos op 1 Maart 1971/1971/R1,00
MM-27/Boshoff, F./The wage structure of highly qualified White employees as at 1 March, 1971/1971/R1,00

MM-28/Hartman, P. en Terblanche, S.S./Werkgeleenthede in die Oos-Transvaalse grensgebiede/1972/R1,45

MM-29/Boshoff, F./Werkgeleenthede in die Noord-Sothogrensgebiede/1972/R0,70

MM-30/Hartman, P./Werkgeleenthede in die grensgebiede naby die Tswanatuisland/1972/R0,70

MM-31/Wessels, Dina M./Die arbeidspatroon van gegradueerde huisvroue in die PWV-gebied - Deel I: Deeltydse werk/1972/R2,95
MM-31/Wessels, Dina M./The employment potential of graduate housewives in the PWV region - Part I: Part-time employment/1972/R2,95

MM-33/Terblanche, S.S./Job opportunities in the border areas of the Orange Free State and Eastern Cape/1972/R1,15

MT-1 /Verhoef, W. en Roos, W.L./Die doel en eksperimentele opset van Projek Talentopname/1970/R0,65
MT-1 /Verhoef, W. and Roos, W.L./The aim and experimental design of Project Talent Survey/1970/R0,65

MT-2 /Roos, W.L./Die 1965-Talentopnametoetsprogram/1970/R0,70
MT-2 /Roos, W.L./The 1965 Talent Survey test programme/1970/R0,70

MT-3 /Roos, W.L./Die intellektueel-superieure leerling: 'n Agtergrondbeskrywing op standerd ses-vlak/1970/R0,50
MT-3 /Roos, W.L./The intellectually superior pupil: A background description at Standard Six level/1970/R0,50

MT-4 /Strydom, A.E./Sportdeelname, skoolprestasie en aanpassing van standerd ses-seuns/1970/R0,55

MT-4 /Strydom, A.E./Participation in sport, school achievement and adaptation of Standard Six boys/1970/R0,55

MT-5 /Smith, F.B./Die enigste kind in die gesin: 'n Vergelykende studie/1970/R0,50
MT-5 /Smith, F.B./The only child in the family: A comparative study/1971/R0,50

MT-6 /Strijdom, H.G./Sosiale status en die verband daarvan met vryetydsaktiwiteite, houdings en aspirasies van Afrikaanssprekende standerd ses-seuns/1971/R0,60
MT-6 /English edition out of print

MT-7 /Smith, F.B./Die epileptiese leerling in standerd ses wat nie spesiale onderrig ontvang nie/1971/R0,60
MT-7 /English edition out of print

MT-8 /Smith, F.B./Die ondergemiddelde leerling: 'n Agtergrondbeskrywing op standerd ses-vlak/1971/R0,55
MT-8 /English edition out of print

NAVORSINGSONTWIKKELING/RESEARCH DEVELOPMENT

Navorsingsbulletin/Verskyn tien keer per jaar/Gratis
Research Bulletin/Ten issues per annum/Gratis

NORD-1/Fourie, E.C./Aanvulling tot die 1969-register van navorsing in die geesteswetenskappe in Suid-Afrika/1971/R1,90
NORD-1/Fourie, E.C./Supplement to the 1969 register of research in the Human Sciences in South Africa/1971/R1,90

OPVOEDKUNDE/EDUCATION

O-1 /Verslag van die komitee vir gedifferensieerde onderwys en voorligting insake 'n nasionale onderwysstelsel op primêre en sekondêre skoolvlak met verwysing na skoolvoorligting as 'n geïntegreerde diens van die onderwysstelsel vir die Republiek van Suid-Afrika en vir Suidwes-Afrika Deel I/1970/ Herdruk 1972/R3,15
O-1 /Report of the committee for differentiated education and guidance in connection with a national system of education at primary and secondary school level with reference to school guidance as an integrated service of the system of education for the Republic of South Africa and South-West Africa Part I/1971/ Reprint 1972/R3,15

O-2 /Oosthuizen, J.H.C./Verslag van die komitee vir gedifferensieerde onderwys en voorligting insake 'n nasionale pre-primêre opvoedingsprogram vir die Republiek van Suid-Afrika en Suidwes-Afrika Deel II/1971/RO,75
O-2 /Oosthuizen, J.H.C./Report of the committee for differentiated education and guidance with regard to a national pre-primary educational programme for the Republic of South Africa and South West Africa Part II/1971/RO,75

O-3 /Visser, P.S./'n Studie van die voorligtingstelsels van die onderwysdepartemente in die Republiek van Suid-Afrika en in Suidwes-Afrika/1970/RO,55

O-4 /Spies, P.G. van Z./'n Studie van voorligtingstelsels in die Republiek van Suid-Afrika, Suidwes-Afrika en in enkele oorsese lande met verwysing na doelstellings en terminologie/1970/RO,40

O-5 /Haasbroek, J.B./Die opleiding van voorligters in die Republiek van Suid-Afrika en in enkele oorsese lande/1970/RO,45

O-6 /Oosthuizen, J.H.C./Die voertaal (medium van onderrig) in 'n stelsel van gedifferensieerde onderwys/1970/RO,40

O-8 /Hatting, D.L./Die onderrig van Aardrykskunde aan Suid-Afrikaanse sekondêre skole: 'n Verkorte weergawe van 'n opname in die jaar 1966/1971/RO,65
O-8 /Hattingh, D.L./The teaching of Geography at South African secondary schools: A condensed version of a survey in the year 1966/1971/RO,80

O-11/Liebenberg, C.R./Die onderrig van Geskiedenis aan Suid-Afrikaanse sekondêre skole: 'n Verkorte weergawe van 'n opname in die jaar 1966/1971/RO,80
O-11/Liebenberg, C.R./The teaching of History at South African secondary schools: A condensed version of a survey in the year 1966/1972/R1,45

PSIGOMETRIKA/PSYCHOMETRICS

Katalogus van toetse/1972/Gratis
Catalogue of tests/1972/Gratis

P-1/Madge, E.M. en Van der Westhuizen, J.G./Die nuwe Suid-Afrikaanse individuele skaal as kliniese hulpmiddel/1971/RO,85

SOSIOLOGIE/SOCIOLOGY

S-1 /Van der Merwe, C.F./Die Afrikaanse landelike en stedelike gesin: 'n Vergelykende ondersoek/1969/R0,90

S-2 /Kellerman, A.P.R., Botha, A.J.J. en De Vos, H van N./Die arbeidspatroon van Kleurlinge in Oos- en Noord-Kaapland: Statistiese gegewens/1969/R1,40

S-3 /Kellerman, A.P.R./Ondersoek na die leefbaarheid van sekere plattelandse kerns in die opvanggebied van die Hendrik Verwoerddam/1969/R1,30

S-4 /Grové, D./Werkskuheid onder die Kleurlinge/1969/R0,90

S-5 /Kellerman, A.P.R. en Van der Westhuizen, N.J./Die arbeidspatroon van Kleurlinge in Transvaal: Statistiese gegewens/1970/R2,80

S-6 /Van der Walt, Tj./Kleurlingvroue met Bantoemans/1970/R2,40

S-7 /Strijdom, H.G. en Van Tonder, J./'n Handleiding by die bepaling van die onderhoudskoste van 'n gesin/1970/R0,55

S-8 /Kellerman, A.P.R./Kontak van Kleurlinge met Bantoes in die Kaapse Skiereiland met besondere verwysing na die werksituasie/1971/R1,20

S-9 /Mostert, W.P./Ondersoek na die gesinsbouproses by Afrikaanssprekende egpare, Fase I: Fertiliteitsbegeertes en gesinsbeplanning by pasgetroudes/1970/R1,20

S-10/Strijdom, H.G./Blanke manlike dowes in Transvaal/1971/R1,45

S-11/Trytsman, D.F. and Bester, C.W./Health education: A bibliography/1970/R2,40

S-14/Mostert, W.P./Die gesinsbouproses by Kleurlinge in die metropolitaanse gebied van Kaapstad/1971/R1,75

S-15/Mostert, W.P. en Engelbrecht, J./Die gesinsbouproses by Bantoes in die metropolitaanse gebied van Kaapstad/1972/R2,10

S-16/Mostert, W.P./Die gesinsbouproses by Bantoes in die metropolitaanse gebied van Durban/1972/R2,10

S-17/Mostert, W.P. en Du Plessis, J.L./Die gesinsbouproses by Bantoes in die munisipale gebied van Pretoria/1972/R3,45

S-18/Mostert, W.P. en Van Eeden, I.J./Die gesinsbouproses by Bantoes in die metropolitaanse gebied van Johannesburg: Soweto/1972/R3,35

S-19/Rip, C.M./Coloured early school leavers in the Western Cape: A sociological study/1971/R1,95

S-20/Van der Merwe, C.F./Moeders wat werk/1972/R2,95

STATISTIEK/STATISTICS

WS-1 /Kies, J.D./Verantwoorde Onderwysstatistiek/1971/R3,70

WS-3 /Van Rensburg, F.A.J./Gradueringstendense aan Suid-Afrikaanse universiteite (Nie-Blankes)/1972/R1,75

WS-4 /Uys, C.J /Gradueringstendense aan Suid-Afrikaanse universiteite (Blankes)/1972/R2,40

WS-5 /Steenkamp, C.J. en Van Rensburg, F.A./Vooruitskattings van die bevolking van onderwysinrigtings in Suid-Afrika/1972/R5,40

TAAL, LETTERE EN KUNS/LANGUAGES, LITERATURE AND ARTS

Nienaber, P.J./Nasionale Dokumentasiesentrum vir Taal en Lettere/1971/Gratis

Nienaber, P.J./Nasionale Dokumentasiesentrum vir Musiek/1971/Gratis
Nienaber, P.J./National Documentation Centre for Music/1971/Gratis

Raper, P.E./Suid-Afrikaanse Naamkundesentrum/1972/Gratis
Raper, P.E./South African Centre of Onomastic Sciences/1972/Gratis

Breytenbach, P.P.B./Nasionale Dokumentasiesentrum vir Vertolkende Kunste/1972/Gratis
Breytenbach, P.P.B./National Documentation Centre for Performing Arts/1972/Gratis

ALGEMEEN/GENERAL

Coetzee, J. Chr./Geannoteerde bibliografie van navorsing in die opvoedkunde/1970/R2,15
Coetzee, J. Chr./Annotated bibliography of research in education/1970/R2,15

ISBN 0 86965 085 8