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Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

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# Features of the Economic Growth and Development of Rural Areas

by

H.A. KOTZÉ,

Professor of Agricultural Economics,  
University of the Orange Free State

## 1. THE GENERAL NATURE OF THE PROBLEM

In South Africa as well as abroad people have recently developed greater consciousness of the economic status of their environments. This consciousness arises mainly from the rapid pace of change which has taken place in all spheres. Large and rapid changes in the economic field is a normal feature in South Africa at present. These changes are spectacular and particularly obvious in the larger urban centres, although the rural areas have not remained uninfluenced in the process. In fact, many rural communities are experiencing changes which penetrate the very core of their economic existence.

During the past few decades there has been greater realization that "economic development is never an even process."<sup>1</sup>) Some old industries have expanded greatly, new ones have been established and have developed rapidly through the growing prosperity which has created new demands for commodities, while there are others which have stagnated or even disappeared.<sup>2</sup>) Similarly economic development has not proceeded at the same pace in a geographical sense. Certain areas in South Africa have developed more rapidly than the rate for the country as a whole, while others have developed at a slower rate. In some areas there has been no growth or the growth has even been negative.

These changes are revealed in the large population movements which have taken place in South Africa, particularly as from the second half of the nineteenth century.<sup>3</sup>) Large urban

complexes with their various economic activities have divided the country into fairly distinct urban and rural areas. In many areas depopulation has taken place. While certain places lacked employment opportunities, such opportunities were abundant in other places. Differential income opportunities have developed. Improved transport and communication systems have developed, more so in some parts of the country than in others. Farming has generally become more commercialised as well as mechanised. Changes in the size of farms have also taken place. In certain farming areas there has been a complete change in the type of farming together with the tendency towards larger farming units. The rural mode of life has not remained unchanged. Through modern means of communication and other factors farmers have become less secluded and came in closer contact with the cities. They are no longer satisfied with inferior services and the secluded existence of the past. The rural populations demand better roads, schools, medical, hospital and other services. Farmers are prepared to travel longer distances to purchase, sell or attend to other needs.

In many rural areas a feeling has taken root that they have not kept pace with areas which have experienced population concentrations and offer a variety of economic activities. Under such circumstances reference has been made to economic backwardness. It is wrong simply to brand an area as economically backward without first making a careful evaluation of the relevant situation.

Robertson points out that retarded economic development is a symptom found in many countries. "Significant regional differences in income and employment levels exist in even the most highly developed economies, and may be the result of underdevelopment or depression. The typical underdeveloped region, with little or no industry, has an extremely high proportion of its active population engaged in agriculture; income per head is low, and underemployment rather than employment tends to be the problem."<sup>4</sup>)

- 1) Robertson, B.C. Regional Development in the European Economic Community. Political and Economic Planning, 16 Queen Anne's Gate, London, 1962, p. 13.
- 2) Schultz, T.W. The Economic Organization of Agriculture. McGraw Hill Book Co., Inc., New York, 1953, p. 146.
- 3) Grosskopf, J.F.W., "Plattelandse verarming en plaasverlating". Die Armblanke-vraagstuk in Suid-Afrika. Verslag van die Carnegie-Kommissie, Deel I. Stellenbosch, 1932.

4) Robertson, B.C., op. cit., p. 13.

This description of an underdeveloped area clearly emphasises low per capita income and underemployment found in areas with little or no industry, where the entire or majority of the population is engaged in agriculture. It must be borne in mind that such an area may within the overall national development programme, have outstanding latent development possibilities which for some reason or other have remained unexploited. Welch stressed the complex nature of the problem of retarded economic development found in sub-national areas as follows: "The web of causation is so intricate and runs off in so many directions that one is hard put to say anything intelligent about it. It is at once a problem of education, a problem of political organization, a problem of culture and social interaction of people, a problem of motivations, a problem of science and technology and their adaptability to local conditions and also a problem of low quality and limited resources in relation to population as well as philosophies and values".<sup>5)</sup>

All rural areas where farming is the main industry and where the largest portion of the population is concerned with agriculture should however not be classified as areas subject to retarded economic development. There are agricultural areas where the level of prosperity safely enables such areas to be classified as economically developed. Such areas do, however, have their development problems which need to be identified and solved. One must thus distinguish between areas with development problems, as mentioned, and those areas which are burdened with retarded economic development. The former region or area is one which is well developed so that its problems are those of adapting to further national economic progress<sup>6)</sup> and the utilisation of new possibilities for development which may arise. On the other hand, the problems of the latter areas, viz. those with retarded economic development, are far more difficult.

5) Welch, F., "The Evolving Low-Income Problems in Agriculture", American Economic Review, May, 1960.

6) Economic progress may be defined as "an increase in the net national product per head, either of the active population or of the total population. This concept also contains non-economic elements such as level of education, evolution of legal systems, mobility of labour, degree of unemployment, length of working hours etc." Roger, C., Secretary of the "Council Central de L' economie", Social and Cultural Factors in Economic Development. Paper prepared for the National Development and Management Foundation of South Africa, Johannesburg

The phenomenon of sub-national differential economic development is a difficult problem which is becoming more pronounced. There is an increasing need for more knowledge of, and better insight into, the causes, the nature, the extent and implications of this problem of uneven development between specific areas. "This is a field in which action programs seem to have grown at a much faster rate than the underlying knowledge essential to their effectiveness."<sup>7)</sup> There are approximately 45 regional development associations in South Africa whose object it is to cultivate an awareness and a sense of regional development in their communities, to promote the development of their regions and to present a co-ordinated view to all responsible bodies in their areas. These development associations were established through the initiative of private individuals and local bodies. It is essential that these associations should gain knowledge of the development potential of their own regions. "In order to determine and outline broadly the desirable direction of development, all knowledge concerning the available and potential natural resources must be pooled. Where such knowledge is insufficient - as it is in many countries, and especially in a young country like the Union - research is a necessary prerequisite in establishing the basic facts before the co-ordinated pattern of resources development can emerge".<sup>8)</sup>

In order to promote the optimum development of a particular rural area it is essential that on the basis of a complete evaluation of the situation, the adaptation to changed circumstances must not be delayed, but must be undertaken with the least possible disruption. With this in view the following aspects should be investigated:

- (i) The underlying economic forces which may influence such a region must be identified;
- (ii) the nature, scope and implications of the development tendencies of such a region must be analysed;
- (iii) the role of the agricultural industry in the economic life of the region must be established;
- (iv) an analysis should be made of anticipated trends of agricultural development, while factors which may impede agricultural development, should be identified;

7) Perloff, H.S., Dunn, E.S. Lampard, E.E., and Muth, R.F., Regions, Resources and Economic Growth. The Johns Hopkins Press, Baltimore, 1960, p. v.

8) Du Toit, F.J., "Resources Development in South Africa". Finance and Trade Review, Volkskas Limited, Pretoria, July 1955, p. 35.

- (v) attention must be drawn to implications in the development trends for the region; and
- (vi) guidance for the formulation of a development policy and the suggestion of methods by which hindrances could be removed, should be given.

Certain aspects will be considered which are based upon the results of investigations in two rural areas, namely the Upper Orange Region and East Griqualand.<sup>9)</sup> The Upper Orange Region is a rural area which during the past decades has experienced practically no quantitative economic growth, in contrast to East Griqualand, a rural area which during the corresponding period has experienced a higher rate of economic growth than that of the country as a whole.

## 2. FACTORS WHICH INFLUENCE THE DEVELOPMENT OF REGIONS

An outline of the factors which influence the development of regions will clarify the question of differential rates of growth.<sup>10)</sup> Regions grow firstly through the localisation of nationally fast-growing industries and secondly through the attraction of an increasing share of such industries. On the one extreme a region may have a growing share of a rapidly developing national industry while on the other extreme a region may have a declining share of a slow growing national industry. The forces which therefore cause different industries to grow on the national level at different rates and which influence the establishment and growth of industries in particular regions, will be reviewed more closely.

The factors influencing the growth of industries on a national level, are productivity and technological development on the supply side, and income elasticity and increases in incomes on the demand side. Since the rate of technological development differs in various fields so also does the rate of productivity differ. On the other hand differences in the income elasticity of demand between products cause disproportionate shifts in demand to occur with rising incomes. The result is that relative prices and

costs change, in accordance with which industries grow at different rates. Consequently labour and capital should flow from the slower to the more rapidly growing industries in order to even out the distribution of income. The degree of growth experienced by a region on account of the nationally growing nature of the industries located in it is called the composition effect of regional growth.

The extent to which a particular region will attract new industries and promote the growth of existing industries, will be determined by the nature and locality of the region. "The producer endeavours to select that production place where he can produce most profitably. The cost of production and income differs, however, from place to place depending upon differences in the availability of inputs of the means of production and services and the accessibility to markets which are important for those particular production enterprises".<sup>11)</sup> (Translation). Factors which must be taken into account, are the supply of inputs, and the quality and quantity to supplementary service industries, the economic distances to various markets, the development of the internal structure of the region, the scope, composition and buying power of the population of the region and the living conditions in the region for new entrants. The amount of growth which a region will experience through the advantages it offers for the growth of particular industries, is called the local-factor effect of regional growth. By measuring these two growth effects a better understanding of the growth of a particular region can be obtained.<sup>12)</sup>

The fact that a growing industry is established within a particular area does not, however, imply that the establishment of other industries will on this account be stimulated. The extent to which a growing industry will stimulate the establishment and growth of other industries will depend upon the nature and scope of that industry. Economic growth in an area is started through interaction of industries within the area, which is determined by an increase in demand outside the area. The result is an extension of economic activities, particularly in local commercial and service industries, through a cumulative process. The extent of developing an "export industry" is an important determining factor in the demand for materials and services and is therefore a stimulus towards the development of complementary industries. The nature of the "export industry" will however determine, where such complementary industries will be located. An industry which employs a large amount of unskilled labour and which obtains little raw ma-

9) Le Clus, C.F., Unpublished results of research for a M.Sc. Agric. thesis, Department of Agricultural Economics, University of the Orange Free State, Bloemfontein, 1968.

10) These factors are set out in detail by: Kotzé H.A., 'n Studie van die ekonomie van Noord-oos-Kaap met besondere verwysing na die landbou. Unpublished D.Sc.Agric. thesis, U.O.F.S., Bloemfontein, 1966, pp. 15-54.

11) Ibid. p. 19.

12) Perloff, H.S., et. al., op. cit., p. 74.

terial and services from within the area, and whose profits are distributed to persons outside the area will not offer much incentive for the establishment and development of local economic activity.<sup>13)</sup> A situation where there are few persons with high incomes and a large low income group might even tend to retard rather than stimulate the development of a region. On the other hand an "export industry" which encourages a more even distribution of income within a region, tends to establish a much greater demand for goods and services within that region, and can stimulate economic activity.

"The investment which is stimulated by the 'export industry' also has an important effect on the economic growth of the area. If the 'export industry' necessitates considerable investment in transport and storage facilities etc., external economies are created which are essential before other industries can develop. Where the 'export industry' stimulates the growth of supplementary industries and where such industries can preferably be established locally, their development will lead to further growth".<sup>14)</sup> (Translation). The extent of economic growth the which may result in an area from its "export industry", is summarised as follows by North: "In summary the disposition of income earned from export industry plays a decisive role in the growth of a region. Related to this argument is the region's propensity to import".<sup>15)</sup> If the income earned by the "export industry" is used to import goods and services from other regions, growth will be stimulated elsewhere via the working of the regional multiplier and the regional accelerator.

### 3. DEVELOPMENT TENDENCIES IN THE UPPER ORANGE REGION AND IN EAST GRIQUALAND

Characteristic of the economies of the two regions under consideration, is the relatively insignificant magnitude of economic activity, through it's insignificant contribution to total national income per square mile, as compared with certain other sub-national regions.

According to the relative contributions of the various branches of production to the total regional income, agriculture is in both regions by far the greatest contributor as against a comparatively small contribution to the Republic as a whole. (Table 1.)

13) North, D.C., "Agriculture in Regional Economic Growth", Agriculture in Economic Development, Edited by C. Eicher and L. Witt, McGraw Hill Book Co., New York 1964, p. 72.

14) Kotzé, H.A., op. cit., p. 51.

15) North, D.C., op. cit., pp. 71 to 72.

TABLE 1 - A comparison of the percentage contribution to total income by production branches, between the Upper Orange Region and East Griqualand and the Republic, averages of the period 1954/55 to 1959/60

Production	Upper Orange Region	East Griqualand	Republic
	%	%	%
Agriculture, forestry and fisheries	47.8	40.1	13.1
Mining and quarrying	-	-	12.1
Manufacturing, construction, electricity, gas and water	4.9	7.7	24.8
Transport, storage and communication	10.5	9.6	9.6
Commerce	8.7	16.8	14.0
Financial institutions and fixed property	2.3	2.2	3.5
Ownership of dwellings	5.1	3.2	3.4
General public services	9.8	13.4	9.6
Other Services	10.9	7.0	9.9
Total	100.0	100.0	100.0

Source: Department of Planning, Pretoria.

The income of the Upper Orange Region showed no increase during this period, while income in East Griqualand increased considerably. (Table 2). During the same period income of the Republic increased appreciably.

TABEL 2 - Regional income of the Upper Orange Region and East Griqualand, 1954/55 to 1959/60

Year	Accrued Gross Value	
	Upper Orange Region	East Griqualand
	R1, 000	
1954/55 .....	28,255	5,936
1955/56 .....	29,950	6,596
1956/57 .....	36,980	6,916
1957/58 .....	31,354	7,223
1958/59 .....	26,651	5,786
1959/60 .....	29,287	10,137

In addition to this there are important differences between the economic structures of the two regions and that of the country in general. Where agriculture is the most important single production branch in the economy of the two regions, it plays a relatively small role in the economy of the country as a whole. Manufacturing contributed very little to the income of these regions, but makes a relatively important contribution to the income of the country in general. These regions dispose of practically no secondary industrial development.

An analysis of the economic-structural changes of the South African economy over the past number of decades show (Figure 1) that the share of agriculture in the total national income has declined sharply. It also shows that the contribution of the secondary industrial sectors increased significantly.

While the actual income from all the production branches increased, the income from agriculture increased at a slower rate than that of manufacturing industries. From this it follows that agriculture is a slow growth industry in the South African economy and that manufacturing is a rapid growth industry.

The fact that the two areas specialise in a slow-growing industry does not, necessarily imply that the amount of economic growth is slow or insignificant. If agriculture experienced a fast enough growth rate the two areas would still

have experienced rapid economic growth. If local conditions do not favour the fast growth of agriculture, or are of such a nature that agriculture stagnates or even declines any rapid quantitative economic growth would be excluded in such an economic structure. The rate of agriculture's growth in these regions, should necessarily be measured in order to determine what the growth rate is in quantitative economic terms. This growth effect is known as the local factor effect.

The result of the two growth effects, namely (a) the composition effect and (b) the local-factor effect together determine the quantitative economic growth which has occurred in a region. These growth effects can be measured. The composition effect is measured by a proportional shift in income and the local factor effect by the differential shift in income. The sum of the two shifts (proportional and differential) is equal to the shift in total income.

In order to evaluate the position of an area with regard to the different growth possibilities which could exist, it is imperative to define the various possibilities which are the result of the two growth effects on the quantitative economic growth of an area. The growth possibilities can be described as follows:

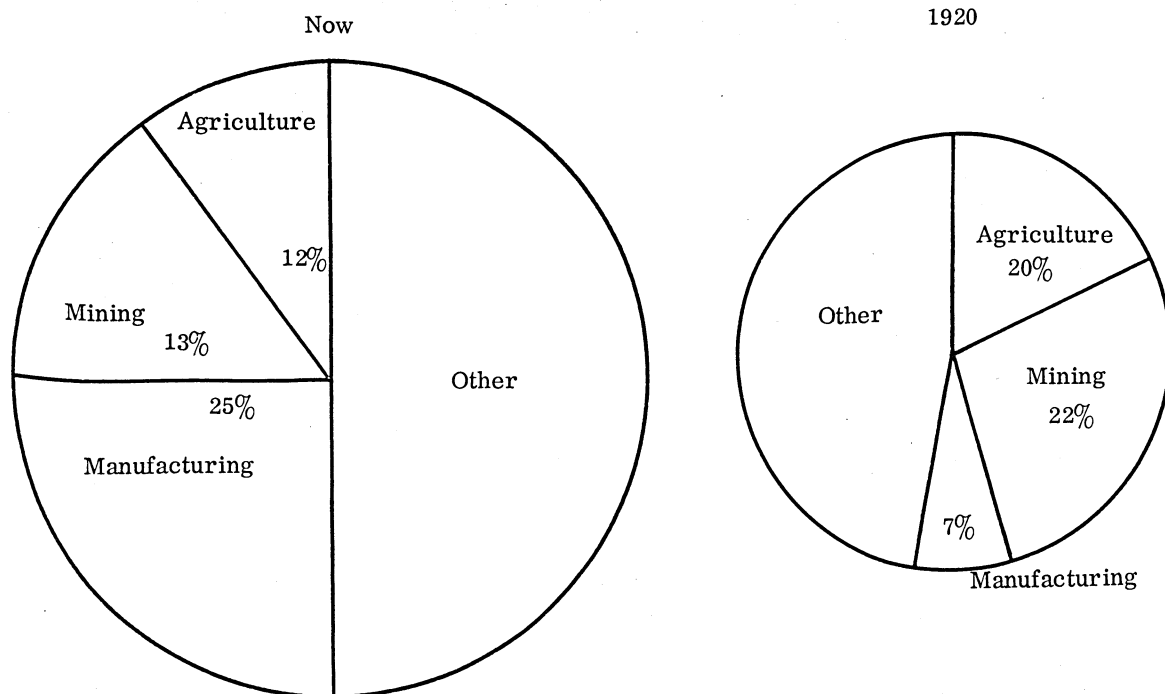


Figure 1 - Share of agriculture, manufacturing and other production branches in the national income, 1920 and now



(i) A region may specialise in fast growing industries and these industries could grow at a faster rate than that of the country as a whole. Such a region experiences a net proportional and differential upward shift in income which together contributes to a net upward shift in total income.

(ii) A region may specialise in fast growing industries which will result in a net proportional upward shift in income, but these industries might grow at a slower rate than in other regions and for the country as a whole which would result in a net downward differential shift in income. Should the net downward differential shift in income, however, be less than the net upward proportional shift, such a region will still experience a net upward shift in total income. Should the net downward differential shift in income be greater than the net upward proportional shift, the region would experience a net downward shift in total income.

(iii) A region may specialise in slow-growing industries which would result in a net downward proportional shift in income. These industries may, however, grow at a faster rate than the rate for the country as a whole so that the region will experience a net upward differential shift in income. If the net upward differential shift in income is less than the net downward proportional shift the region will experience a net downward shift in income. If the net upward differential shift in income is greater than the net downward shift in income, the region will experience a net upward shift in total income.

(iv) A last possibility occurs where a region specialises in a slow-growing industry which grows at a slower rate than the growth rate of that industry for the country as a whole. Such a region will experience a net downward proportional and differential shift in income and thus a net downward shift in total income.

These different growth possibilities are illustrated in Table 3.

The volume of economic growth in the Upper Orange Region is typified by growth possibility (iv) above or 6 in Table 3. As a result this region has shown a negative net proportional shift in income amounting to R1,363,000 during the period under review. (Table 5.) In addition, this dominating production sector was responsible for 80 per cent of the negative differential downward shift in income. The total negative net differential shift in income was R2,063,000 (Table 4).

TABLE 3 - Various growth possibilities which a region may experience within the national context

Growth possibilities	Proportional growth as a result of the composition effect	Differential growth as a result of the local factor effect	Total volume of growth (Proportional and differential)
1	+	+	+
2	+	-	+
3	+	-	-
4	-	+	+
5	-	+	-
6	-	-	-

TABLE 4 - Differential shift in regional income of the Upper Orange and East Griqualand regions, 1954/55 to 1959/60

Production sector	Shift	
	Upper Orange	East Griqualand
	R1,000	
Agriculture, forestry and fisheries .....	- 1,627	+ 2,564
Mining and quarrying .....	-	+ 3
Manufacturing, construction, electricity, gas and water .....	- 179	+ 471
Transport, storage and communication .....	0	- 15
Commerce .....	- 182	- 155
Financial institutions and fixed property .....	- 28	- 171
Ownership of dwellings ...	- 37	- 37
General public services ..	- 28	- 168
Other services .....	+ 18	+ 166
Total differential net shift in regional income	- 2,063	+ 2,658

Source: Calculated from data supplied by the Department of Planning, Pretoria

The extent of economic growth of East Griqualand is represented by growth possibility 4, Table 3. Because of the composition effect this area reveals a negative proportional shift in income. Through exceptionally favourable local growth conditions agriculture has grown considerably. The result is that the region has experienced a positive net differential growth which more than compensates for the negative proportional growth, to the extent that a net upward total shift in income of R2,253,000 has been realised. (Refer to Table 4 and 5). Rapidly

TABLE 5 - Shift in total regional income caused by differential and proportional shifts in income for the Upper Orange and East Griqualand Regions from 1954/55 to 1959/60

Shift in regional income	Upper Orange	East Griqualand
	R	
Net differential shift in income	- 2,063,000	+ 2,658,000
Net proportional shift in income	- 1,363,000	- 405,000
Net shift in total regional income	- 3,426,000	+ 2,253,000

Source: Calculated from data furnished by the Department of Planning, Pretoria

growing manufacturing industries are practically absent in both regions.

The growth possibilities of the respective districts in the Central Region were also measured and are shown in Table 6, as well as on the map. To obtain a better understanding it can be noted that quantitative growth in all regions where agriculture predominates can be divided into (a) those which grow relatively slowly, those which show no growth and those with negative growth (growth possibilities - - - and - + -) and (b) those that grow relatively faster than the growth rate for the country as a whole (growth possibilities - + +).

TABLE 6 - Growth possibilities of the central region 1954/55 to 1958/59, measured by regional income

Growth possibilities			Districts
Proportional	Differential	Total	
+	+	+	Bloemfontein, Odendaalsrus, Sasolburg, Virginia, Welkom, Kimberley, Barkly East, Postmasburg.
-	+	+	Boshof, Bothaville, Bultfontein, Jacobsdal, Hoopstad, Wesselsbron, Kuruman, Vryburg, Mafeking.
-	+	-	Parys, Ventersburg, Warrenton, Herbert.
-	-	-	Bethlehem, Bethulie, Brandfort, Clocolan, Dewetsdorp, Edenburg, Fauresmith, Ficksburg, Fourieburg, Frankfort, Harrismith, Heilbron, Koppies, Kroonstad, Ladybrand, Lindley, Marquard, Philippolis, Reddersburg, Reitz, Rouxville, Senekal, Smithfield, Thaba Nchu, Theunissen, Trompsburg, Viljoenskroon, Vrede, Vrededorf, Wepener, Winburg, Zastron, Gordonias, Kenhardt, Hay, Prieska, Hopetown, Britstown, De Aar and Philipstown.

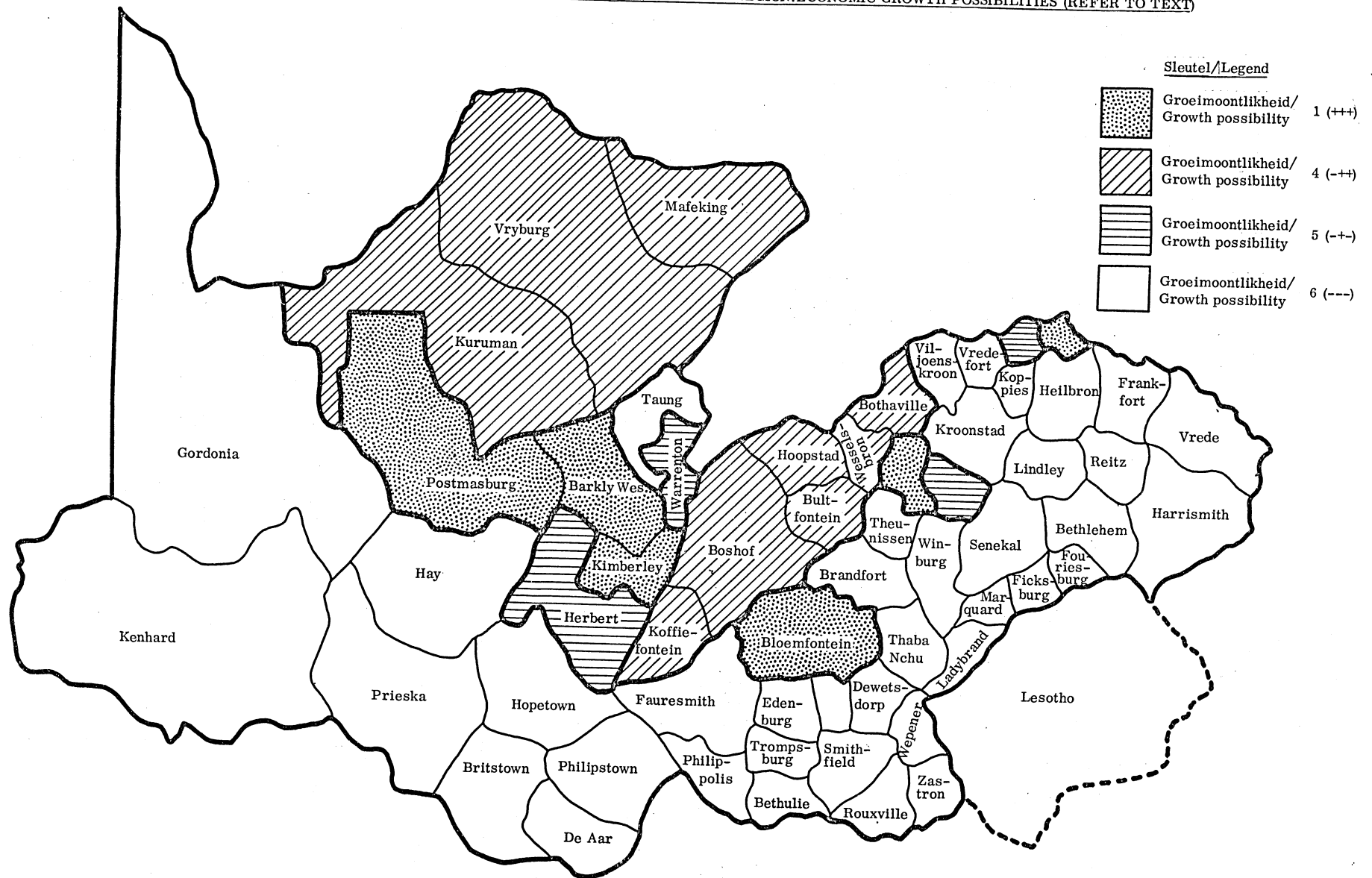
The foregoing exposition emphasizes that:

1. All sub-national areas cannot experience the same growth rate in quantitative economic activities;
2. two growth factors, namely the composition effect and the local-factor effect constitute the total growth of areas;
3. agriculture is a slow-growing industry in the national economy;
4. all areas in which agriculture plays an important role, will experience a downward proportional shift in income; and
5. the total amount of growth of such areas need not necessarily show negative shifts, but will depend upon differential shifts in income, as shown in Table 5.

#### 4. ANALYSIS OF THE FACTORS OF GROWTH

It is not enough, however, to merely identify the growth effects mentioned. The underlying factors must also be taken into account in order to obtain a clear picture of the economic growth pattern of a particular area. These factors are dealt with in terms of the situation found in the Upper Orange and East Griqualand regions.

MIDDE-STREEK: EKONOMIESE GROEIMOONTLIKHEDE (VERGELYK TEKS) / CENTRAL REGION: ECONOMIC GROWTH POSSIBILITIES (REFER TO TEXT)



#### 4.1 Agricultural development

Two questions must be answered, namely why is agriculture a slow-growing industry in the national economy and why has this particular industry not grown at the same rate in the two regions.

Regarding the first question it may be briefly stated that the decline in the share of agriculture in the South African economy, which has taken place over the years, has been caused by important long-term demand and supply changes. These areas must accept the influence of the proportional growth effect on their respective economies. This helps to explain the dynamic aspects of their economies, but these areas cannot themselves bring about a change in the trends.

With regard to the second question, an insight into the local circumstances of agricultural production explains the differential growth effect which influenced the amount of the economic growth of the areas. It is the result of local factors which are more favourable in some areas than in others. Among these factors are for example the possibility of a larger utilisation of primary resources, the possibility of a larger output from primary sources (the result of greater utilisation of other inputs such as of industrial origin), technological development and the qualities of management. The availability, adoption, application and applicability of new techniques differ widely between various fields of production. This results in differences in the production potential of respective areas. In addition there are the influences which changing price relationships exert on profitability. All these factors can lead to changes in agricultural production and must be taken into account when analysing the differential rates of growth in different rural areas.

In the Upper Orange Region the possibility of an increase in agricultural output by utilising more land for agricultural purposes is restricted. In addition the possibilities of field crop production is limited due to various natural factors. The horizontal expansion in this field is also limited. It is an area where stock-farming predominates, but the possibility of increasing the total agricultural output through increasing the amount of livestock is excluded. Unit output of the most important branches of agriculture has also not increased over the years. Available statistics indicate that the physical volume of total field crop and livestock production has not increased.

Contrary to the trend of agricultural output, the use of various inputs like fertilizers, fuel, machinery and tools, fodder, livestock re-

medies, waterworks and fencing has of late increased considerably, while the use of labour shows little change.

The result of these trends is that the gross value of agricultural output per Rand of intermediate goods and services at 1954/55 prices has declined between 1954/55 and 1959/60 from R3.20 to R2.60. The question arises as to whether the decrease in productivity is the result of delayed technological development or that is has not produced the desired results. Farmers have applied up to date practices and techniques on their farms to a considerable extent but everyone has not succeeded in applying these effectively or in a co-ordinated manner. Farmers who have shown success were not only economically efficient, but also realised a considerably higher output per unit than the economically inefficient farmers. A more efficient application of current practices and techniques certainly offers possibilities for growth in the Upper Orange Region. The processes by which such a growth possibility could be attained are, however, by their nature slow and the extent is restricted.

As distinct from the effects of the growth possibilities mentioned, sustained quantitative economic growth depends upon the extent to which applicable technological development is available. The most important technological developments of the past decades which have been responsible for increases in agricultural output, e.g. mechanization, fertilizers and seed, have benefitted field crop areas in particular, but were only applicable to a limited extent in the greater part of the area. It is true that mechanization, fertilization etc. has increased but this has not resulted in higher output per unit, causing a decline in agricultural income and a net downward differential shift in the income of the Upper Orange Region.

The price relationship between output and input has also become less favourable and has accounted for a decline in the agricultural income of the area. Unless higher productivity in farming can be attained which would reduce unit production costs to such an extent that it would compensate for the unfavourable price relationship, the income of the area will continue to show a net downward shift. In addition a favourable change in the output/input price relationship could help to counteract the net downward shift in income.

In contrast to the Upper Orange Region, East Griqualand is still in a stage of constant returns to scale. From this it can be concluded that it should be possible to further increase the volume of agricultural output in the area. The extent to which the application of each production factor should be increased will however depend upon the difference between the marginal product value of the production factor and the marginal cost

thereof. The production factor capital is already applied to the extent where these two marginal values are equal (marginal value of production-price of capital). Labour and short-term capital inputs still offer much scope for expansion. These findings presume a constant level of management efficiency and constant techniques. Should management and techniques be improved, the marginal product values of the three categories of inputs mentioned can be increased at constant levels of cost. Besides this the expansion of agricultural production will further be aided should the input/output price relationships become more favourable. It must be emphasised, however, that this growth pattern can only prevail as long as the local growth factors remain favourable. If this does not take place the area will revert to relatively slow growth or even negative growth.

It is now clear that the adjustments required by the local communities in the two areas differ widely. A uniform development policy is thus decidedly unsuitable.

The downward trend in agricultural income in the Upper Orange Region results in a decline in the income per unit of area, and should the number of farmers remain constant, the income per farmer will decrease. Even if agricultural income increases over time but at a slower rate than the income from all sections of production for the country as a whole, it will still experience a net downward shift. In these circumstances it will mean that in a given production area with a given number of farmers, the income per farmer will decline in relation to farming in general and the per capita income in the rest of the economy. The trends mentioned require that certain adjustments in the agricultural industry of the region would have to be made. Should it be accepted as an objective that the rate of increase in per capita income of farmers in the region must keep pace with that of farmers in the rest of the country as well as that of persons engaged in other activities, such income trends will necessitate that farming units must be enlarged and the number of farmers reduced.

Such a process of adjustment is already taking place, but the extent of and rate at which it should take place differs for various parts of the area. On account of the effect of output/input price relationships which are becoming less favourable and at the present level of technological development in farming, it can be expected that this process of adjustment will be greater in the sour veld parts than in the mixed and particularly sweet veld parts. In those parts of the region where most farming units are too small to ensure an adequate standard of living as measured against the present standards of living of South Africa's White population, the need for this type of adjustment will be great.

There are a considerable number of similar areas in South Africa as indicated for the Central Area. To ensure a per capita income which will keep abreast with incomes elsewhere, the consolidation of farms is a prerequisite. This process is taking place but for known reasons, too slowly, and is not keeping pace with general economic development. It is especially in similar areas where the problem of farming units which are too small is most acute. It is therefore necessary that the authorities should take action and expedite the process of adjustment in such a manner that it is accompanied by the least possible social disruption. Such programmes will not be successfully carried out should it be forced onto the communities, but they will have to be planned and executed in co-operation with communities. Rightly so: "Every region in the country cannot hope to experience rapid increases in the volume of economic activities and in population. But every region can hope to enjoy a high and rising level of per capita income (as long as the nation's output and productivity increases) if it is willing to face up to the need for a relative 'emptying out' when the overall situation with regard to relative advantages among regions calls for it."16)

Similar regions to that of East Griqualand, where agriculture reveals positive growth, require programmes which will do justice to the existing growth potentialities. Where stagnant or slow-growing areas require programmes which are more of a sociological nature, these areas also require similar programmes, but together with essential education of a highly technological/economic nature. Provision can at this stage be made to prevent these regions from slipping on account of the badly judged subdivision of farms in the present favourable situation, over-optimism regarding the structure of land prices etc., which could ultimately create situations similar to those in the first mentioned regions. In contrast: "corrective" measures apply to the one region and "preventive" measures to the other. This means that a negative development movement requires positive thought and action and only positive measures will ensure that a positive development movement will continue to remain positive.

The agriculturist is not the inventor of new technologies, but rightly the innovator of them. Consequently the level of management in a particular region will determine the extent to which new developments in the field of technology in agriculture can be applied successfully. In this respect it is found that greater economic activity of larger farming units could inter alia also be ascribed to the better management qualities of large scale farmers as against small ones. Besides this it was also found that to ensure a decent existence on a large farm, the owner has to comply with definite standards of efficient management. Only farmers with a high degree

16) Perloff, H.S., et. al., op. cit., pp. 105-106.

of efficiency attained a higher net income on larger farms. Should there be any indication that a small farmer does not meet certain standards of efficient management it cannot simply be accepted that if he were to establish himself on a large farm that he would be financially successful.

These findings involve important implications of policy to obtain a solution to the problem of disproportionate distribution of farm income. The position is particularly complicated for small farmers with low economic efficiency. Special measures are needed to assist these farmers, but these must be preceded by a scientific determination of the farmer's managerial ability and the production potentialities of his farm. An evaluation of this nature would determine the advisability of persuading such a small farmer to consider alternative employment as a solution to his problem.

The foregoing emphasizes that the solution of the complex problems arising from uneconomic farming units requires the application of a comprehensive development program. Provision would have to be made for a variety of measures which will supplement each other to overcome all facets of the problem. The problem of disproportionate distribution of farm income is one of the hidden elements of retarded economic development of rural areas.

Soil conservation is also closely tied to the managerial ability of the farmer. Apparently the application of physical conservation measures depends upon certain sound qualities such as a high standard of general education, wide association with various sources of scientific information, progressiveness and a high aspiration level. The human element has a far greater influence on the attainment of the set objective than has thus far been recognised in soil conservation measures.

Attention has thus been drawn to a neglected element which has seriously affected the efficiency of soil conservation efforts. The employment of funds and man-power applied to conservation measures have not brought about the desired results and were to a large extent wasted. This human element will have to receive attention so as to prevent the decline of future production. It will require measures to develop the sound qualities mentioned so that farmers would not only establish physical conservation measures, but will also manage their farms in such a way that the objectives of conservation will be realised. Such measures should be recognised as conservation measures and should as in the

case of physical measures be applied in accordance with the marginal principle. Where the sound qualities mentioned are lacking to such an extent that the objective of conservation cannot be realised, the fostering of these qualities should receive high priority in the drafting and implementation of the conservation programme and should be recognised as such in the allocation of funds and man-power.

There is a strong correlation between the social/cultural qualities mentioned and the financial success of farmers. Most of the economically efficient farmers had enjoyed better education, showed a positive attitude towards agricultural science and training, had high aspirations and contact with the outside world, subscribed to agricultural periodicals, were members of various farmers' associations and had wives with a good school training. The presence of these social/cultural factors apparently contributed much towards good management and the carrying out of decisions. All this signifies that the personal qualities of the farmer entails important economic implications for agriculture. Agricultural economic policy must definitely take account of these factors.

#### 4.2 Secondary and tertiary development

Agricultural development does not necessarily encourage spectacular secondary and tertiary development. Nor is such development a magic formula which can solve the problems of slow-growing or stagnating rural areas. Too often rural areas in South Africa have called for smoking chimneys as a solution to their problems. It is not quite so simple. The extent to which such development can take place in rural areas depends upon various factors. The impact of these factors differ between regions and must be established for each region.

While it is frequently true that the development of secondary industry in rural areas is insignificant, the possibility of processing local raw materials to meet the local demand for certain industrial products and services, is being utilised to a large extent. The scope for further secondary industrial development is not excluded, but would necessitate attention to the pattern of industrial development in South Africa. Spectacular secondary industrial development, based on local agricultural raw materials cannot take place everywhere and further secondary industrial development and maintained economic growth in rural areas will depend upon the feasibility

of establishing such industries. In the present stage of development of the South African economy the biggest development will probably be in respect of industries processing basic and intermediary raw materials. To determine where future secondary economic growth might take place, it would be necessary to determine where these industries could be located. Many of these industries lend themselves to decentralization and could create new growth points. The areas with comparative advantages for the establishment of industries processing basic and intermediary raw materials, may thus develop into new growth areas. Regions with little primary raw materials but which have a large labour force can attract industries which are not bound to a particular locality. Should such industries, however, cause a concentration of Bantu labourers in White rural regions, their establishment cannot be justified. This means that while labour was historically considered the mobile production factor, capital and the entrepreneur must now be viewed as the mobile factors.

A further important aspect, with which Mr. P.J.D. du Toit will deal, will only be referred to briefly. Significant changes are taking place in the pattern of rural service centres. Various factors underlie these changes of which the most important are improvements in the systems of transportation and communication and the increased size of farming units. Improved transport has made it possible for farmers to travel longer distances to larger centres for business purposes. In addition farmers on larger farms purchase more of their requirements in distant and larger centres than those on smaller farms. Many of the smaller service centres thus no longer enjoy the full advantages of the buying power of their localities. This development is causing the decline of smaller rural centres and the development of a few as service centres.

Service centres must take account of this. Schemes must not be introduced which are out of proportion with the potentialities and possible future expansion of a service area. It is therefore essential that each service centre should have a correct image of its functions and recognise the underlying forces which influence the demand for its services.

The present and growing tendency to determine the worth of the rural areas in the national economy and to select the methods of planning for development merely in terms of economic farming units, is one-sided and spells danger for the future. "... the development of the town

areas and their surrounding rural areas (i.e. farms) must be approached as an integrated community and be organised and planned in terms of the total potential of that greater community and not merely in terms of economic farming units. In fact as our regional development organizations and movements show, it becomes clearer and more necessary that the individual towns and their adjoining rural areas be regarded as a total combination of integrated and related regions or zones, and be planned and developed accordingly. ... Without the hinterland of a healthy rural population the large commercial and industrial centres cannot in the long run continue to exist".<sup>17)</sup> (Translation).

## 5. CONCLUSION

The responsibility for solving these problems rests firstly with the local communities. Active steps should be taken in an organised manner by the communities to evaluate the economic status of their areas. There is an urgent need for comprehensive development programmes for our rural areas which would contribute in a proper manner to the solution of their problems and the enlargement of their economies. It is essential that in the development of rural areas account must be taken of the interdependence of a large diversity of factors which have a determining influence on the material and spiritual welfare of their communities. Therefore it cannot be overemphasized that the efficiency of a development programme will be determined largely by the extent to which proper account is taken of the role played by the diversity of factors both singularly and collectively.

One thing is clear and that is that the problems of an area cannot be solved by *ad hoc* measures. A serious warning must be sounded against the application of patchwork measures which are nothing but examples of a lack of insight into the complete scope and complexity of the problems, as well as their integrated nature. An investment in such measures will not prove profitable.

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- 17) Keyter, J. de W., *Sosiologiese aspekte van die Suidoos-Vrystaat*. Vierde verslag, *Streekopname van die Suidoos-Vrystaat*, Universiteit van die Oranje-Vrystaat. 1963, p. 135.

A regional development programme must firstly be founded on those basic values which are indispensable for the maintenance of a mature community in the true sense of the word. Secondly such a programme must be drafted and based on an intimate knowledge of all the activities of the local community in their separate and combined context. Thirdly it will be necessary to evaluate the function of a particular region in its wider national context. Finally such a development programme must be carried out with the full collaboration of the local com-

munity and under co-ordinated and expert guidance.

From the foregoing it is clear that the efficient preparation and execution of a regional development programme constitutes a comprehensive and complicated task which demands knowledge and experience of a special nature. In this respect we still have a serious backlog in South Africa.