Growth pole theory and regional development in South Africa: Results of a survey in selected growth areas

by

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PREFACE

This paper forms part of a wider research project at present being conducted by the Urban Problems Research Unit, which aims to investigate the urbanisation process in South Africa and the applicability of various settlement policies to the South African context. The views expressed are those of the authors who also wish to acknowledge financial support from the C.S.I.R.

We should like to thank Debbie Budlender (SALDRU) for programming the data and Dr de Necker of Stellenbosch University for the use of his linkage survey format.
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1. INTRODUCTION

There are few nations in the world in which the state has not attempted to manipulate the spatial pattern of settlement to some or other political or economic end. In the case of South Africa, state interference in the settlement pattern dates back to the 1940's and has been extremely far-reaching in terms of its impact on urbanisation and the spatial distribution of settlement.

A central component of the South African state's interference in the settlement system has been in terms of the industrial decentralisation policy which has aimed to manipulate the middle level of settlement. There have successive shifts in the orientation and spatial form of the policy. Increasingly, however, in the interests of technical neutrality, the state has attempted to identify South African industrial decentralisation policy with its international equivalent. It is thus considered useful to evaluate the experience of industrial decentralisation policy in South Africa against the growth pole theory on which it is supposedly based.

2. MEASURES

The data used in the paper is based on a postal survey of 13 growth centres and was conducted in April 1983. The towns were chosen to cover the following categories of growth centre:

1. The location: whether the town was an isolated "White" town, a deconcentration point, a border town or a homeland town.

2. Age of the town: the division here was between already established towns and new or recently created towns.

3. Length of time for which incentives have been granted.
There are several problems with the use of the survey data: the sample is small, the response rate both to the survey as a whole and to certain questions contained in the survey is very low; as a result of uneven response between towns the sample as a whole over-represents industries in homeland towns, and industries in "new" towns; as a result of separate surveying carried out in Butterworth, any results for homelands as a whole over-represent Butterworth; for practical reasons no towns in Natal are represented, and a number of the largest growth centres (e.g. Newcastle, East London and Bloemfontein) have been omitted; lastly, the sample as a whole over-represents the more capital-intensive sectors (a).

Tables 2 to 5 detailing the representativeness of the sample are contained in Appendix 1. As a result of these problems, survey results must be regarded with a great deal of caution, and where possible arguments are substantiated with supplementary evidence.

NOTES

(a) Paper, printing, chemicals, plastic, basic metals, fabricated metals, machinery, electrical goods, communications equipment, transport equipment.
3. GROWTH POLE POLICY: THEORY AND PRACTICE

Growth pole theory has its roots in a body of development theory (developed initially in the 1940's and 1950's) concerned with the production of economic growth in less developed nations and regions. The real origins of these strategies may be traced to the world economic collapse of 1929/30 and the realisation thereafter that state intervention to stabilise the economy was imperative. This had important spatial implications, both in terms of attempts to boost lagging regions in the advanced capitalist countries, and to "develop" the Third World.

The "modernisation" or "growth" theories of development promulgated at this time were based on the assumption that economic growth equals modernisation, which equals specialisation, division of labour, mechanisation and productivity, the benefits of which automatically "trickle down" to uplift all, and that the urban/industrial centre is the primary vehicle of this growth. The prime instrument which was advocated to bring development to lagging regions was the "growth pole": an urban industrial complex which is supposed to achieve self-sustained growth in its own right and spread benefits into the surrounding region. The following two sections will examine the extent to which this has occurred in the sampled case areas.

A. The Ability of a Growth Pole to Achieve Self-Sustaining Growth

In terms of both early proponents of growth pole policy and later evaluative work on the topic (1), three factors have been identified which are crucial to achievement of self-sustaining growth.

a) The ability of a growth pole to attract propulsive industries.

b) The ability of firms to benefit from economies of agglomeration.

c) The form of the incentive package.

These will be examined in turn.
In the initial conception of growth poles, the engine of growth was seen to be a propulsive or leading industry. This is defined as a large, modern, fast-growing, capital-intensive industry, which forms part of the most advanced sector of the economy and has a high degree of backward and forward linkages to other industrial sectors. Growth is generated both by the innovating capacity of the propulsive industry and its backward and forward linkage. A crucial question, therefore, is: to what extent have South African growth centres been able to attract propulsive industries?

The survey indicated that apart from Newcastle and Richard's Bay (which were not surveyed) which were based on the development of propulsive industries, the ability of growth centres to attract propulsive industries is extremely poor. In fact in only one instance had a propulsive industry (a) been attracted to a growth centre (in this case, a deconcentration centre located close to a major metropolitan area).

This particular industry had been established by the I.D.C. (Industrial Development Corporation), is heavily subsidised and operates at an inefficient level as a result of the small size of the local market and economic recession (2). While the establishment of this industry has resulted successfully in the attraction of at least one other backward linked industry, a significant proportion of its inputs is imported, thus limiting the extent to which spin-off can occur locally.

Given the general absence of true propulsive industries in the growth centres surveyed it is necessary to analyse the nature of the industries which have been attracted to growth centres in order to gauge the growth potential inherent in the existing pattern of decentralisation.

Three factors are considered to be important here: firstly, the proportion of industries which fall into the category "fast growing" and "capital intensive" (the more dynamic growth-oriented industries);
secondly the degree to which linkages have been built up between firms in growth centres, and thirdly, the degree to which firms are part of a larger company (that is, their relative autonomy). Each of these will be considered in turn.

1. **Fast-growing capital-intensive industries**

   Table 6 (see Appendix 2) shows that on average some 35% of industries in the selected growth centres fall into the more dynamic sectors of the economy, and this proportion rises as high as 66% in one instance. However, when one examines the nature of their product it becomes apparent that a considerable number of these are relatively simple, final stage production processes with weak linkages to other industries. Their ability to undergo vigorous growth and to attract other linked industries will therefore be limited.

   Significantly, however, there is some variation between the different kinds of growth centres.

   Firstly, in the case of the older, more isolated "White" towns (George and Kimberley in the sample) industries are service-oriented or produce basic products for the local market (b). In only one case did an industry sell its products outside the local area (in this case to the P.W.V.).

   Industries are moreover mostly small: only one establishment employed more than 60 people and in George five out of six establishments employed fewer than 15 people.

   Secondly, peripheral homeland-based growth centres tend to have a larger proportion of industries in the capital-intensive, faster growing sectors and also tend to produce, to a greater extent, for the major metropolitan markets. Nonetheless, they remain primarily in simple final stage production and a significant number are spatially separate parts of larger production processes.
Thus, 47% of industries in more "dynamic" sectors are small (only one employed over 60 workers) and produce relatively simple consumption items for the local market (c). 23% produce for more distant markets, but these are also relatively small (d) and also produce simple final stage products (e). The remaining industries either assembled parts produced elsewhere or produced parts for complex industries located in metropolitan areas.

Thirdly, deconcentration points have generally been able to attract a more diversified range of activities, and the largest proportion of more capital-intensive, faster-growing industries.

However, the propulsive effect of these industries is also limited. In the cases of Brits and Babelegi, located close to the P.W.V., 45% of industries (5 out of the 11 sampled) are simple, final stage producers with no backward or forward links to local industries; 27% (3) produce parts for distant markets; 18% (2) are part of a spatially divided production process and are thus by definition linked to plants elsewhere.

In the case of Atlantis (located near metro Cape Town) the situation is little better. Of the 12 industries sampled, 66% (8) are simple, final goods producers; 2 smaller companies produce intermediate goods and one of these sells to a local "propulsive" industry.

ii. Inter-industry linkage in growth centres

In terms of growth centre theory, the localisation of inter-industry linkages (and hence the capture of the local multiplier) is central to the achievement of self-sustained growth.

Initially, this concern was tied to the theory of propulsive industrial growth, which held that the attraction of propulsive industries would serve to attract linked industries, and this would form the basis of the development of the local
economy. Subsequently, however, in the application of growth pole theory to the South African context, it was considered sufficient simply to attract industries which were in some way "linked" (by purchase of inputs or sales) to the growth centre (or the broader region). Given the inability of most centres to attract propulsive industries, it is necessary to analyse the extent to which it has been possible to attract locally-linked industries into growth centres.

a. Inputs

**TABLE 7**

**DEGREE OF LOCALISATION OF INPUTS**

<table>
<thead>
<tr>
<th>Inputs Origin</th>
<th>All</th>
<th>Most</th>
<th>Some</th>
<th>Little</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Firms</td>
<td>No. of Firms</td>
<td>No. of Firms</td>
<td>No. of Firms</td>
<td>No. of Firms</td>
</tr>
<tr>
<td>Growth Centre 1</td>
<td>14</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>14 (17,5%)</td>
</tr>
<tr>
<td>Region 2</td>
<td>20</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>20 (25%)</td>
</tr>
<tr>
<td>Local Metropolitan Area</td>
<td>45</td>
<td>6</td>
<td>18</td>
<td>6</td>
<td>45 (56,25%)</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 80

Notes: 1. Little = 5% or less of inputs.
2. Region = Area within 300 km excluding Metropolitan areas.

Table 7 shows the degree to which firms in the sample derive their inputs from the growth centre, from the broad region, and from the "local" metropolitan area. From this it is apparent that only 17,5% of industries sampled derive any inputs from the growth centre, and only 8% derive all or most of their inputs from the growth centre. In a smaller sample (f) it was found that only 3,1% of the Rand value of inputs was bought in the growth centre. While the two figures are not directly comparable, they do serve to indicate - in a broad way - that the localisation of inputs within the centre is not occurring.
In general, industries in growth centres obtain a far higher proportion of their inputs from the broader region in which they are situated. However, the majority of these inputs are from a neighbouring metropolitan area: purchases from a local metropolis account for 28.84% of all inputs on average. While these figures reflect to a large extent the importance of the P.W.V. as an input source for the deconcentration points of Brits and Babelgen, they do serve to confirm the hypothesis that the spin-off from decentralised industries is felt primarily in the larger towns and metropolitan areas, rather than in the growth centre or its region. This is particularly the case with deconcentration points which, in monetary value, derive almost half their input from the local metropolitan area and virtually none from the deconcentration point itself (g).

b. Outputs

In general, forward linkages (the sale of outputs) are more highly localised than backward linkages. However, since the output of a large proportion of establishments is in the form of final goods (h) the spin-off effect will be less than in the case of backward linkages.

**TABLE 10**

**DEGREE OF LOCALISATION OF OUTPUTS**

<table>
<thead>
<tr>
<th>Output Destination</th>
<th>All</th>
<th>Most</th>
<th>Some</th>
<th>Little</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Centre</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>8</td>
<td>31 (41.3%)</td>
</tr>
<tr>
<td>Region</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>1</td>
<td>31 (41.3%)</td>
</tr>
<tr>
<td>Local Metro</td>
<td>3</td>
<td>9</td>
<td>11</td>
<td>3</td>
<td>26 (34.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>29</td>
<td></td>
<td></td>
<td>N = 75</td>
</tr>
</tbody>
</table>
Table 10 indicates that 41.3% of all industries sampled sell at least some of their products within the growth centre, although only 16% sell all or most of their products in the growth centre. However, the financial impact of this is more limited: Table 11 (in Appendix 2) shows that the Rand value of local output is only 4.6% of the total output. Moreover sales to metropolitan areas still exceed sales either to the centre itself or the region adjacent to the centre, thus conforming with the pattern of backward linkages (1).

These generalised trends are in line with hypotheses (3) about South African growth centres, and with the detailed findings for the growth centre of East London (4). The fact that these trends are repeated in a growth centre which is much larger and better established than any centre tested here is cause for concern: it suggests that poor local linkage is not simply a teething problem, but may result more from a fundamental regional condition — for example, a lack of local markets, poor resources, unattractiveness to backward linked industries (as a result of lack of facilities, too small markets, etc.) or from the existence of the incentive system.

iii. Spatial division of establishments

In the original conception of growth poles, the attraction of large multi-plant firms was seen as beneficial to the development of the centre. In particular it was believed that large multi-plant firms (or at least firms with outside head offices) would more easily bridge space, and hence overcome the problems of the lack of local agglomeration economies in fledgling points, and distance from major markets and information centres. The greater flexibility of these companies, and built-in metropolitan connections would enable them to survive problems inherent in the creation of a growth centre.
Further, it was held that large multi-plant companies would provide an effective mechanism for diffusing new innovations to the periphery (and to firms within the periphery). In theory, therefore, these firms were seen as providing an impetus to development.

Subsequently, however, authors (5) have argued that large multi-plant firms tend to have mainly a detrimental impact on regional development. In fact, it is often held that the widespread attraction of "branches" to growth centres is partly responsible for their failure. Because of their large share of routine production processes and the lack of their own administrative and research activities, branch plants very often create low skill and thus low paid jobs. Smaller branch plants show more instability with regard to macro-economic fluctuations because their headquarters tend to reduce employment first in the peripheral branch plants. Further, branch plants tend to have linkages over larger distances and therefore make fewer regional purchases, have a smaller multiplier effect and contribute to leakage out of the region.

The current survey confirmed the hypotheses that the majority of companies in growth centres are non-independent: 60% of firms sampled in the survey are part of larger companies (j). This is the case in all the sampled growth centres, except for "white" towns (see Table 13).

**TABLE 13**

**RELATIONSHIP BETWEEN LOCATION AND STATUS**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Independent</td>
<td>13 (72%)</td>
<td>10 (66%)</td>
<td>6 (60%)</td>
<td>23 (60%)</td>
<td>10 (43%)</td>
<td>62 (60%)</td>
</tr>
<tr>
<td>Independent</td>
<td>5 (28%)</td>
<td>5 (34%)</td>
<td>4 (40%)</td>
<td>15 (39,4%)</td>
<td>13 (56%)</td>
<td>42 (40%)</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>15</td>
<td>10</td>
<td>38</td>
<td>23</td>
<td>104</td>
</tr>
</tbody>
</table>

\[ x^2 = 22.44 \text{ (} x^2 \text{ crit. at df = 4 and } p = 0.05 \text{ is 9.49) } \]
However, it is not possible, from the data collected, to draw conclusions on the impact of this factor on the expansion and development of growth centres. On one hand, it does not appear as if the non-independence of firms has any particularly beneficial effect (the existence of a head office or production division in a larger centre or metropolitan area did not appear to be of particular help in overcoming problems of services, maintenance and repair (see Table 14). This to a large extent is explained by the kind of service problem experienced: certain problems are experienced in growth centres regardless of outside back-up (see Table 15 in Appendix 2).

On the other hand, non-independence of companies does not appear to have a particularly negative effect (in terms of the promotion of growth) either. The survey distinguished between a number of different types of non-independent establishments. Of these, it is only production divisions, and to a lesser extent workshops, which show any of the negative effects usually ascribed to "branches". However, there are few establishments of this type amongst the industries sampled; and they occur mainly in centres close to metropolitan areas.

In terms of the generation of backward and forward linkages, production divisions and workshops do appear to have a lower degree of linkage to other industries in the growth centre (see Table 16 in Appendix 2) but the general level of local linkage is so low anyway, that status makes very little difference.

Further, while production divisions were slightly more capital-intensive than independent establishments (k), they did not show a significantly greater tendency to retrench than independent companies. In general, it was not possible to substantiate the hypothesis that non-independent firms are more susceptible to labour cutbacks. In fact there are indications that firms in growth centres have to some extent been cushioned from the general recession by incentives available to them, and it seems possible that when a multi-plant company does retrench it may be more likely to do this in the metropolitan area than in the growth centre.
TABLE 14

ADEQUACY OF SERVICES AND STATUS

a. Status of Firms and Adequacy of Services

<table>
<thead>
<tr>
<th>Status</th>
<th>Services Adequate</th>
<th>Services Inadequate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Industries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Divisions¹</td>
<td>4 (66%)</td>
<td>2 (34%)</td>
<td>6</td>
</tr>
<tr>
<td>Workshops²</td>
<td>4 (66%)</td>
<td>2 (34%)</td>
<td>6</td>
</tr>
<tr>
<td>Branches</td>
<td>8 (47%)</td>
<td>9 (53%)</td>
<td>17</td>
</tr>
<tr>
<td>Subsidiaries</td>
<td>6 (35%)</td>
<td>11 (64%)</td>
<td>17</td>
</tr>
<tr>
<td>Other non-independents</td>
<td>4 (50%)</td>
<td>4 (50%)</td>
<td>8</td>
</tr>
<tr>
<td>Independent</td>
<td>27 (65%)</td>
<td>14 (35%)</td>
<td>41</td>
</tr>
<tr>
<td>State</td>
<td>2 (66%)</td>
<td>1 (34%)</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>43</td>
<td>98</td>
</tr>
</tbody>
</table>

Notes
1. Production Divisions = establishment which fulfils one or two functions in a company's production process.
2. Workshop = establishment carrying all of a company's production processes, but where the head office (administrative functions) are located elsewhere.

b. Location of Head Office and Adequacy of Services

<table>
<thead>
<tr>
<th>Location of Head Office</th>
<th>Services Adequate</th>
<th>Services Inadequate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth Centre</td>
<td>34 (62%)</td>
<td>21 (38%)</td>
<td>55</td>
</tr>
<tr>
<td>Elsewhere</td>
<td>23 (53%)</td>
<td>20 (49%)</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>41</td>
<td>98</td>
</tr>
</tbody>
</table>

Yates corrected $\chi^2 = 0.388$  df = 1. prob. = .5332
iv. Conclusion

The survey has shown that on the whole South African growth centres are still dominated by industries which fall into the category of "traditional", and, to a lesser extent, "slow growing". (1). There is, however, a growing number of industries which belong to the fastest-growing, capital-intensive sectors. However, in the majority of cases these more dynamic industries produce simple, final stage products and are relatively small. Most frequently where this is not the case, establishments in decentralisation points fulfil one or two simpler functions in a complex, spatially divided production process. In both cases they are usually closely linked to the metropolitan economies both in terms of inputs and outputs and a significant proportion is linked administratively as well.

The implications of this are that the chances of autonomous growth in the growth centres are slim, and further, that the local multiplier effect will be limited. This, however, varies with the different kinds of growth centre.

On one hand, industries in "White town" growth centres are far more closely tied to their local markets and their expansion potential will therefore be determined by the expansion of the town itself. While this undoubtedly implies a slower growth rate it does suggest that a greater local multiplier will operate.

On the other hand homeland-based growth centres and particularly deconcentration centres contain a higher level of dynamic industries which have stronger links to the metropolitan economies. Consequently there is greater potential for their expansion but their impact in terms of a local multiplier is likely to be much less.
(b) **Economies of Agglomeration**

An urban location for industry fulfils three important functions which affect the viability of the industry itself. Firstly, it provides essential back-up services such as banking and other financial services, repair and maintenance services, communication services, including good transportation, adequate utility services, such as water and power, and so on. Secondly, it provides a market for products. Together, these functions provide "economies of agglomeration" and these economies in turn provide an attraction for the establishment of further industries. Growth, once initiated, thus tends to become self-sustaining.

It appears that these requirements are generally not fulfilled in South African growth centres.

Firstly, inadequate industrial infrastructure and services are perceived as important disadvantages of growth centre location (see Table 17 in Appendix 2). The degree to which this problem is experienced does, however, vary according to type of growth centre.

In particular, it appears that problems with infrastructure and services are especially severe in homeland-based growth centres and in newer towns. (See Table 18 in Appendix 2). The reasons for this are not difficult to find. Homeland-based growth centres (which are very often the newer centres as well) are generally smaller, distant from metropolitan areas, and have not been able to generate sufficient threshold to make the establishment of an adequate range of services viable. By contrast, "White" towns tend to be larger and long established and contained basic services and infrastructure prior to their declaration as a growth centre. Finally, the situation in deconcentration points falls somewhere between that in homeland growth centres and "White" town growth centres: while the level of service and infrastructure is far from adequate, it is possible for industrialists in deconcentration points to take advantage of services in neighbouring metropolitan areas. Moreover, administrative systems are very often metropolitan-based and are more efficient.
The counter argument to this is that it is simply a matter of time before homeland-based growth centres and deconcentration points grow sufficiently in size to create the threshold for a better level of services, infrastructure and administration. However, there is no guarantee that this will occur.

In the case of Butterworth (a homeland-based growth centre) it was noted that the kinds of adjustments which larger companies had been making to the problems of services and infrastructure were in fact mitigating against its future solution. In terms of maintenance, repair, supplies and engineering, most of the larger companies had managed to internalise these services or (as was the case with one company) relied on a low service-intensive production process. Similarly some companies had obtained permission to use their own transport. Consequently, it has been the smaller companies which have continued to require independent service functions, but the chances of building up threshold are continually being eroded by the adjustments of the larger companies.

Similarly in the case of deconcentration points there is a tendency for purchasing power to "leak" back to the adjacent metropolitan area; while companies continue to rely on services provided in the metropolitan area the chances of achieving self-sufficiency of servicing in the growth centre are diminished.

Secondly, according to industrialists, the requirement of a supply of available and trainable labour is not satisfactorily fulfilled. In fact the response of industrialists to the supply of labour in growth centres has been somewhat ambiguous. On one hand an adequate supply of labour is perceived as one of the greatest advantages of a growth centre location (especially in the homelands) (see Table 19 in Appendix 2). On the other hand, over half of industrialists sampled in the homeland-based growth centres complained of workers' lack of basic industrial skills; and problems relating to low productivity featured prominently (Table 20 in Appendix 2).

Again, there appears to be no guarantee (at least in the case of homeland-based growth centres) that this problem is being overcome. If the case of Butterworth can again be taken as indicative, it would appear that few industrial workers are being attracted away
from metropolitan areas. What seems more likely (but little research has been done on this) is that homeland growth centres act as a stepping stone for peasants or unskilled workers who will attempt to move on to industrial jobs in the metropolitan areas as soon as they have acquired a basic level of skill. This effect may, however, be muted by the high level of unemployment in South Africa, and by the fact that women, who are the majority of industrial workers in most homeland growth points (see Section 3B below), are most constrained by influx control practices.

A third important factor contributing to agglomeration economies is social infrastructure: that is shopping facilities, entertainment, health and education facilities and housing. It appears from the survey that these facilities are to a large extent lacking in growth centres, and that the most important implication of this is a difficulty in recruiting technical and managerial staff. Over half of all industries sampled (and over 75% in border and homeland areas) reported difficulties in this regard (m) (see Table 21 in Appendix 2).

This again, is a function of a lack of threshold and in particular a lack of "luxury" level purchasing power. The response has been to make use of facilities in nearby large towns and metropolitan areas, a pattern which has in turn contributed to a constant "leakage" of purchasing power out of the growth centres.

A combination of the above factors make it highly unlikely that a process of "lateral linkage" will take place in growth centres (that is, the relocation of industries to a growth centre in order to take advantage of the economies of agglomeration which exist there (n)). Growth centres will continue to grow on the basis of the specific advantages which they offer (incentives and cheap, available labour) but the chances of establishing self-sustained growth appear, at this stage, remote.

It is, however, of significance that the existence of economies of agglomeration does not appear to feature as a major consideration to decentralising industrialists. In fact there are indications that in recent years industrialists have favoured those growth centres
where agglomeration economies are either virtually absent (homeland-based centres) or are indirect (deconcentration points) (see Tables 22, 23 and 24 in Appendix 2). Clearly advantages to be derived from the incentive package and from the availability of cheap labour outweigh the need for agglomeration economies, or are compensated for by the incentive package itself. Under these conditions the chances of building up agglomeration economies in order to create viable urban industrial centres in the long term becomes even more remote.

(c) The Effect of the Incentive System

It is generally recognised in growth pole theory that in order to initiate the development of a growth centre, and particularly to attract propulsive industry, the provision of some form of economic incentive is necessary. The purpose of these incentives is to overcome initial diseconomies which exist in a new location prior to the building of urban agglomeration economies. Usually these incentives are specifically tailored to the needs of the propulsive industry and are temporary in nature: they are removed as soon as growth appears to become self-sustaining.

The experience of applying incentives to growth centres in South Africa departs from these general tenets in three main ways and these departures have had important consequences for the policy as a whole.

1. Firstly, incentives have not been specifically designed to the requirements of particular industries but rather have been applied in a blanket fashion to all types of industry and to all aspects of the production process: to labour, to capital, to transport, to training and also on relocation, on tenders and on electricity. In general, the aim of the Decentralisation Board has been to relocate as many industries as possible with little regard for the nature and impact of different types of industry.

Clearly, with this approach a propulsive industry will be
attracted only by chance and not by design. However, it has been found elsewhere (7) that an indiscriminatory incentive system may have more directly negative effects: it has tended to attract to growth centres industries which are "lame ducks", firms from elsewhere in the periphery and branch plants.

In the case of South African growth centres these assertions hold true to a limited extent only. A blanket incentive package has in fact been unable to attract propulsive industries in the selected growth centres (except in the case of Atlantis (c), and a large proportion of the industries which have relocated are branch plants.

However, in the first place it appears that the characteristics attributed to branch plants are to a large extent shared by most companies in growth centres (see Sections (a), (ii) and (iii) above): most companies have few linkages to the growth centre itself and contain a predominance of low-skilled, low wage jobs. In the second place, the proportion of "lame ducks" (industries entirely dependent on subsidies) is not as great as would be expected. When respondents to the questionnaire were asked the extent to which they could and would continue production without incentives, 62% said that they could continue without incentives, but only 49% said that they would continue without incentives (Table 25) (p). Significantly, the survey showed that if incentives were removed, some 19.2% of jobs in growth centres would be lost while a further 7.8% would be in doubt. This suggests that it is primarily the smaller establishments which would be affected by a removal of incentives. Significantly, however, if incentives were removed the impact would not be uniform: those growth centres with the least inherent advantages (agglomeration economies, cheap Black labour) would be most affected by relocation. This suggests that the impact of incentives is not so much to encourage inefficient industries, but to encourage inefficient location. This will be discussed further below.
TABLE 25
DEPENDENCE ON INCENTIVES AND LOCATION

1. Could Continue Without Incentives and Location

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</thead>
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<td>6</td>
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<td>2</td>
<td>1</td>
<td>13</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
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<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
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<td>9</td>
<td>7</td>
<td>28</td>
<td>9</td>
<td>68</td>
</tr>
</tbody>
</table>

2. Would Continue Without Incentives and Location

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
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<td></td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>11</td>
<td>5</td>
<td>33</td>
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<tr>
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<td></td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Maybe</td>
<td></td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
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<td></td>
<td>15</td>
<td>8</td>
<td>7</td>
<td>28</td>
<td>9</td>
<td>67</td>
</tr>
</tbody>
</table>

ii. Secondly, it does not appear that incentives are intended to overcome initial diseconomies of a location only. A large proportion of industries have received incentives for a long period of time and will continue to do so in the future. Thus (according to the survey results) 40% of industries which were established in growth centres before 1960, still receive incentives, and a further 20% of industries established before 1960 expect to receive incentives in the future. (Table 26, Appendix 2) Only 3.2% of industries sampled have ceased to rely on incentives.

At the present time it appears unlikely that incentives will be phased out, even though this intention is frequently expressed by government officials. It appears to be relatively easy for industries to extend concessions by replacing machinery or expanding premises and applying for incentives "de novo" on these improvements; many companies opting for the 1982 incentive package will be able to extend their period of
subsidised operation yet again; and it is likely that long established industries will continue to receive incentives so as to protect them from competition from new, heavily subsidised industry.

iii. Thirdly, the way in which incentives are being applied is hindering the creation of satisfactory agglomeration economies at any one growth centre. This is occurring for two reasons.

In the first place decentralisation incentives are granted at a very large number of locations: according to the 1983 Report of the Board for the Decentralisation of Industries, applications for assistance were approved at no less than 122 places. One reason for this is political: there has been pressure from most non-metropolitan districts to have at least one of its urban areas declared as a growth centre. The result, however, has been that industrial growth has been widely dispersed and it has not been possible to build up agglomeration economies at any one point.

Further, in at least some homeland areas (q) there appears to be a concern to avoid what is perceived as too much concentration in one or two urban centres - largely for political reasons. In the Transkei this is seen in plans to develop 90 rural service centres, and 20 market towns to house some 62,5% of the urban population by the year 2003. This kind of attitude to the development of urban centres may well be partly responsible for the diffusion of industrial development between a number of growth centres within each homeland (r).

In the second place changes in the way in which the incentive system has been applied have tended to change the competitive advantage of growth centres, and this has introduced an element of unpredictability as to the future prospects of centres. For example, in the Eastern Cape, Butterworth, despite its disadvantaged location relative to major national markets for many years had an advantage in terms of a more favourable
concessions package. Recently this advantage has been under­
mined firstly by the establishment of growth centres located
more favourably in relation to major metropolitan areas
(Babelegi, Rosslyn, Atlantis and so on) and secondly by the
1982 incentive package and the creation of Region D which
incorporates Border, Ciskei and Transkei into one economic
region. While the 1982 package improves concessions in relative
terms, it also makes Butterworth less competitive in relation
to East London and the Ciskei points of Dimbaza and Berlin-
Mdantsane which are more favourably located with respect
to raw materials, markets and labour. As a result expansion
has been occurring in the Ciskei but there has been little
new growth in Butterworth (s).

The underlying reason for this has again been political.
There is a tendency to use the system in an attempt to diffuse
rising political tension, in this case in the Ciskei. The
result, however, is simply to affect negatively the confidence
of industrialists in the growth centres and hence their long-
term performance.

(d) Conclusion

Given the absence of conventional conditions for self-sustaining
growth in most South African growth centres, the major question becomes:
what is the potential for attracting industries given the existing
programme for decentralisation and, in particular, what is the potential
for the achievement of unsubsidised growth?

It is apparent from the survey that there are genuine advantages to
be gained by certain industries from a location in a growth centre,
and that this advantage lies in a combination of the benefits to be
obtained from incentives and a supply of cheap, available labour (t).
(Refer Table 19 in Appendix 2). Obviously not all industries will
benefit from this kind of location and hence the general unpopularity
of measures restricting the expansion of industry in certain metropolitan
areas. The implication is, however, that as long as the advantages
of a growth centre location remain, certain industries will continue to decentralise and growth centres will increase in size. However, while some industries will certainly be attracted to growth centres (particularly those close to metropolitan areas, and offering cheap, available labour), it is unlikely to be sufficient to cope with the demand for employment in non-metropolitan areas. Much has been made of the attractiveness of the 1982 incentive package, and its superiority over past measures. This is undoubtedly the case but it seems that the scale is exaggerated. The 1983 Decentralisation Board Report (8) claims a figure of 65,000 jobs to be created in approved projects (outside "independent" homelands) - this is slightly more than half of the annual new entrants on to the labour market in homeland areas (9) and over five times higher than employment which actually came to fruition in any previous year. Yet it is likely that this figure is far higher than the jobs which will actually materialise. There are several reasons for this.

Firstly, following past trends, employment in projects which actually materialise is likely to be between 20% and 74% of employment in approved projects; in most years it is about half.

Secondly, it is to be expected that the drop-out rate will be highest in the first year of a new incentive package as firms test to see what benefits they could receive if they located in a growth centre. Certainly the drop-out rate in 1975 and 1976 was very high (See Table 27 in Appendix 2).

Thirdly, while most industrialists (59%) in the survey thought that the new incentive package is better than the old, this is not universal (u).

Fourthly, it is possible that the recession is acting to inflate the number of firms which are willing to locate in decentralisation points - mainly due to the availability of (cash) incentives. This is suggested by Table 28 (in Appendix 2) which indicates that, since 1975, the years of highest growth in national manufacturing employment have shown the lowest growth rates in manufacturing employment in decentralisation points.
In the final analysis, however, the success of the policy in its present form will depend on the funds made available, and this will depend on the priority - in political terms - accorded to the full development of the South African periphery.

The question of the potential for the unsubsidised growth of growth centres is a more difficult one. Bell (10) has argued that decentralisation has been a largely spontaneous process, and that much of it would have occurred without incentives. If this is the case (v) then it is likely that industrial development has acted mainly to distort the spatial form of industrial development in the periphery. If incentives had never been available, it is most likely that there would have been movement to a few, larger border towns and also movement to the periphery of metropolitan areas where there was an improved labour supply. Some smaller establishments could have been expected to move to "White" towns and homelands to cater to the local market.

The implication of this is that if present incentives were removed or phased out, a number of growth centres would survive but only a few of the better located ones would continue to grow: according to the survey, the most common reason given for not relocating if incentives are removed is relocation costs. This includes a number of firms which would prefer to move to proximate, but larger growth centres to serve the same market (e.g. from Butterworth to East London). Paradoxically, therefore, the existence of the incentive system has acted to reduce the potential for unsubsidised growth in a number of larger peripheral towns.

Given the inability of the policy to promote self-sustaining growth in most peripheral areas, it is necessary to question whether any other benefits have accrued to the periphery as a result of growth centre policy.
NOTES

a. In the survey, a propulsive industry was defined as one which fulfilled the requirements of being large (over a hundred workers), capital-intensive (over R10 000 capital equipment per worker - where the figure was available), belonging to a capital-intensive sector, with strong backward and forward linkages (i.e. simple final goods production, e.g. burglar bars, tin cans, etc. were excluded). Low-skill peripheral divisions of a larger complex industry were excluded (e.g. the manufacture of autolooms for the motor industry).

b. Of the 9 industries in dynamic sectors sampled, 5 made goods for the local market (maintenance articles, parts, spares, etc. or relatively basic articles such as doors and windows). A further three industries also sold the bulk of their products locally.

c. Light metal work, cleaning materials, service engineering, agricultural implements.

d. Two-thirds employ fewer than a hundred workers.

e. There was one exception to this pattern in Kingwilliamstown where one establishment is large and produces components for a distant market.

f. Defined by industries which gave full answers to the relevant question in the postal survey (see Table 9 in Appendix 2).

g. According to Table 9 (in Appendix 2) only 25% of industries in Atlantis buy any inputs from the local metropolitan area. This is far lower than the 48.9% shown in Table 8. The discrepancy is due firstly to differences in the sample and secondly to the lack of weighting in Table 8. However, the basic pattern of primary links to the local metropolitan area remain.

h. 73% of industries in the sample are final goods producers.

i. Homeland growth centres are an exception in this regard - over half the industries in the sample sell at least some products to the broader region. However, this to a large extent reflects the "informal sector" type industries of Seshego and consumer good production in Butterworth.

j. Only in the "White towns" is this not the case - See Table 13.

k. Comparison of mean capital per worker for independent companies and production divisions is significant using t - test:

\[ t = 2.7, \text{df} = 8, \ t \text{crit} = 1.96. \]

l. According to Nattrass (6), textiles and clothing in the 1970's grew faster than average, but they do not belong to the fastest-growing sectors of the South African economy.

m. The most common problems cited were: the small size of the growth centre, poor facilities, isolation and in some cases poor housing.

n. The only circumstances in which this may occur is in the case of industries moving in to deconcentration points from other growth centres, or industries
moving to "White" town growth centres. Both appear to occur relatively rarely.

o. In this case extra measures have been necessary to ensure the survival of the single propulsive there.

p. Questionnaire indicated that "relocation costs" would be a major factor inhibiting relocation out of a youth centre.

q. Notably the Transkei, but possibly others too.

r. Another reason advanced by Hirsch is that of the visibility of development spread in a number of points. This he argues is intended to legitimate homeland governments, without necessarily developing homeland areas.

s. One industrialist commented that a number of firms in Butterworth had considered relocating to Dimbaza (Ciskei).

t. This applies most especially to growth centres located in or near homeland areas. For those centres located far from a cheap labour supply (e.g. Atlantis) incentives became the major drawcard.

u. 33% thought the new package was worse, 6% thought it the same as the old package, and 1.5% did not know.

v. There are some problems with Bell's argument. Firstly, Bell gives little credibility to arguments that industries have been (directly or indirectly) forced out of metropolitan areas. But this appears as a reason for location in, and relocation to, decentralisation points in a few cases (Table 30). To this may be added a number of cases in which location in decentralisation points was "encouraged" by government. Secondly, incentives appear as a reason for location in almost half of all cases, though labour - as suggested by Bell - is perceived as an important reason for location, and an advantage in many cases. Thirdly, Bell's argument is based mainly on the movement of clothing and textile industries out of metropolitan areas. And while this may be the case, this sector is nonetheless a small proportion of manufacturing employment outside of the four major metropolitan areas (see Table 29 in Appendix 2), hence the argument does not necessarily account for the movement of other types of industries into decentralisation points. Our data, however, suggests that Bell's argument that industries are moving out of the metropolitan areas to take advantage of labour supply available may well be applicable to sectors other than textiles and clothing.
TABLE 30

REASONS FOR RELOCATION

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>Premises</td>
<td>7</td>
</tr>
<tr>
<td>Incentives</td>
<td>13</td>
</tr>
<tr>
<td>Labour Shortage</td>
<td>3</td>
</tr>
<tr>
<td>Forced Out</td>
<td>4</td>
</tr>
<tr>
<td>Tied to Expansion</td>
<td>13</td>
</tr>
<tr>
<td>Change in Ownership</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

N = 27

Notes: Cases are distributed by area as follows:

- Isolated White Towns = 1
- Border Areas = 1
- Homelands = 9
- Deconc. (Atlantis) = 8
- Deconc. (Brits/ Babelegi) = 8
REFERENCES


B. The Ability of a Growth Pole to Contribute Positively to the Problem of Uneven Regional Development

In terms of classical growth pole theory, a primary rationale for the establishment of growth poles in underdeveloped regions is that the benefits of the pole will spread through the region and improve the quality of life of the majority of people. This diffusion is presumed to occur in three main ways.

Firstly, the benefits of growth are felt within the pole itself where the working classes are provided with employment, income and services such as housing, education and health facilities.

Secondly, the benefits of growth are spread into the surrounding rural hinterland. This happens as a result of purchases of foodstuffs and raw materials from the rural areas, by worker remittances to their families in the rural areas, by the absorption of people off the land which in turn stimulates the commercialisation of agriculture, and finally by the spread of capital and services into the surrounding rural area.

Thirdly, innovations originating in the growth pole spread through the urban hierarchy: initially to towns which are the same order as the growth pole, and subsequently to settlements in successively low levels of the size/function hierarchy.

These assumptions will be examined in turn with respect to the selected growth centres.

(a) Impact of Growth Centres on the Quality of Life within the Centre

As stated, there are three important ways in which an urban-industrial complex can positively affect the quality of life of its residents: by providing employment, by increasing incomes and by stimulating the provision of basic services such as housing, schools and health, and cultural and recreational facilities.
i. Employment

There are at the present time some 206 744 people employed in growth centres in South Africa. However, this achievement requires some qualification.

Firstly, the cost of providing jobs in growth centres is very high: the cost of creating an industrial job was at least R15 932 in direct investment in 1981 (a), primarily as a result of the high cost of providing infrastructure and of providing incentives. The cost of jobs is even higher when set against the 146 000 potential jobs lost in metropolitan areas between 1968 and 1983 as a result of the refusals under Section 3 of the Physical Planning and Utilisation of Resources Act (1). To this can be added jobs lost as a result of plant closure (b). There is little chance that provisions of the 1982 legislation will improve matters. While firms will be allowed to employ Black labour if they wish, the costs of doing so will be increased by the cutting of tax concessions for worker training and increased employee levies. Further the reduction of subsidies on housing and transport will severely affect the cost of living of urban workers and will reduce the level of remittances to the homelands.

Secondly, the ability to create jobs in growth centres is going to become more difficult as a result of a general trend towards capital intensification. One reason for this is that labour surplus areas attract not only inherently labour-intensive industries (such as textiles) but also more highly mechanised industries which have undergone a process of de-skilling and can take advantage of cheap, unorganised labour. Another reason is the general South African (and world) trend in this direction and the higher level of productivity which can be expected from it.

For example, in the Border-Ciskei-Transkei region there has in recent years been a more rapid growth of the capital
component (mechanised plant) than the labour component (Table 31). Job creation in the future is going to be a slower and more difficult process.

Table 31. \( \triangle \) Labour x \( \triangle \) Capital x \( \triangle \) Capital/Labour x Year 1982

<table>
<thead>
<tr>
<th>Year</th>
<th>( \triangle L )</th>
<th>( \triangle K )</th>
<th>( \triangle K/L )</th>
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<tbody>
<tr>
<td>1979 - 82</td>
<td>24.5</td>
<td>44.24</td>
<td>15.82</td>
</tr>
<tr>
<td>1982 - 85</td>
<td>18.77</td>
<td>43.33</td>
<td>20.68</td>
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</table>


Thirdly, the kinds of jobs which are being created in growth centres are to a large extent unskilled, and this is especially the case in the homeland and border-based growth centres. Table 32 indicates that overall 73.6% of jobs in growth centres in the survey are classified as unskilled and in homeland areas this proportion rises to 87% of total jobs. This employment structure has serious implications, firstly for wages in growth centres and secondly for the kinds of skills which are being built up in peripheral regions.

Table 32

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
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<td>Unskilled:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1, 2, 3</td>
<td>56.5%</td>
<td>69.3%</td>
<td>71.1%</td>
<td>87.4%</td>
<td>14.8%</td>
</tr>
<tr>
<td>B1, 3</td>
<td>36.4%</td>
<td>24.6%</td>
<td>23.8%</td>
<td>11.8%</td>
<td>61.7%</td>
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<tr>
<td>Skilled:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B4</td>
<td>6.0%</td>
<td>6.2%</td>
<td>4.8%</td>
<td>0.7%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Total:</td>
<td>1721</td>
<td>2319</td>
<td>2662</td>
<td>4603</td>
<td>1980</td>
</tr>
</tbody>
</table>

Note: Skill codings are derived from Patterson Job Evaluation Categories (see Appendix 2 for description).
ii. Incomes

As has been documented elsewhere (3), industrial wages in the selected growth centres are lower than industrial wages elsewhere, and this is particularly the case in homeland areas. Table 33 shows these trends for 1976.

<table>
<thead>
<tr>
<th>Growth Centre</th>
<th>Black Wage</th>
<th>% of S.A. Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantis</td>
<td>1267.37</td>
<td>88.3%</td>
</tr>
<tr>
<td>Brits</td>
<td>1206.45</td>
<td>84.2%</td>
</tr>
<tr>
<td>Kimberley</td>
<td>943.67</td>
<td>65.7%</td>
</tr>
<tr>
<td>George</td>
<td>996.82</td>
<td>69.4%</td>
</tr>
<tr>
<td>Kingwilliamstown</td>
<td>950.57</td>
<td>66.3%</td>
</tr>
<tr>
<td>Potgietersrus</td>
<td>768.38</td>
<td>53.5%</td>
</tr>
<tr>
<td>Ciskei</td>
<td>330.59</td>
<td>23%</td>
</tr>
<tr>
<td>Lebowa</td>
<td>514.09</td>
<td>35.8%</td>
</tr>
<tr>
<td>Lebowa</td>
<td>661.29</td>
<td>46.1%</td>
</tr>
<tr>
<td>S.A.</td>
<td>1434.51</td>
<td>100%</td>
</tr>
</tbody>
</table>


Note: 1. Figures for specific points within homeland areas are not given.

Given the absence of more complete, recent data, Table 34 (see Appendix 2), confirms these trends and goes some way to explaining them. Firstly, the wage pattern is affected by skill levels: wages are most depressed (relative to national averages) in the most unskilled job categories, and as indicated above, there is a predominance of unskilled jobs in growth centres, and in homeland growth centres in particular.

Secondly, wage levels are affected by a sexual division of labour. Particularly in the border and homeland growth centres, women form the largest percentage of industrial workers (see Table 35 in Appendix A) while their earnings are some 32% - 34% of their national counterparts. Female
dominance must therefore be seen as contributory to overall wage levels.

In interviews conducted in Butterworth several industrialists expressed a preference for female employees on the grounds that they work harder and are more reliable, and it seems that where feasible, women will be employed in preference to men. The fact that there is a female labour force in the homeland areas prepared to work for wages such as these, is, however, simply indicative of the extent to which women are trapped in the homelands and are unable legally to take advantage of the migration option to the extent that men can.

To these factors can be added the general labour surplus in homeland areas, and the fact that unions are disallowed, or have been severely harassed in the majority of homelands.

iii. Urban Services

In many cases, it appears that rather than stimulating a higher level of service provision for the labour force, industrial growth has resulted in an overburdening of existing services. Overall, only 40.8% of respondents to the survey were satisfied with the available social infrastructure, and only in the "White" town growth centres (where agglomeration economies have begun to develop) is there a measure of satisfaction with the level of services (Table 36).

| TABLE 36 |
| ADEQUACY OF SOCIAL INFRASTRUCTURE AND LOCATION |

<table>
<thead>
<tr>
<th>Location</th>
<th>% of Respondents Satisfied with Social Infrastructure</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deconc. (Atlantis)</td>
<td>33.3%</td>
<td>15</td>
</tr>
<tr>
<td>Deconc. (Brits)</td>
<td>14.2%</td>
<td>7</td>
</tr>
<tr>
<td>Border (Brits)</td>
<td>55.5%</td>
<td>9</td>
</tr>
<tr>
<td>Homelands</td>
<td>30.7%</td>
<td>39</td>
</tr>
<tr>
<td>Isolated White Towns</td>
<td>65.2%</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>40.86%</td>
<td>93</td>
</tr>
</tbody>
</table>
The most common complaint cited by industrialists is inadequacy and shortage of worker housing (see Table 37 in Appendix 2). Frequently worker housing is left in the hands of the local municipality which may be reluctant to spend money on this usually unprofitable service. There also tends to be a time lag between the growth in demand for housing and its approval and provision by the local authority, with a consequent strain on the existing services. In the case of the Transkei (and possibly in other homelands) there are political factors underlying this as well: there is a fear by the homeland government of allowing uncontrolled urbanisation to the major towns and the consequent restriction on the supply of plots and housing has led to severe overcrowding (4).

The case of Atlantis illustrates a different aspect of the housing problem. Here an attempt has been made to coordinate the provision of housing and industrial jobs (particularly since a primary reason for the creation of Atlantis was the "deconcentration" of the Coloured population from metropolitan Cape Town). In this case, however, one problem has been that industrial jobs have not materialised at the predicted rate and consequently a large proportion of Atlantis residents find that they must commute to Cape Town for employment. A second problem (and one experienced in other newer growth centres) is that the cost of providing housing services is high and this cost is passed on in the form of high rents and service charges.

A second major problem is that generally speaking the cost of living is higher in growth centres than in the metropolitan areas. Apart from higher housing costs the prices of most consumer goods are higher. This is partly because of transport costs and partly because the low volume of purchasing power (c) in these smaller towns allows the establishment of monopolies by suppliers, with consequent higher prices.

Alongside this higher cost of living in growth centres must be placed the generally lower wages received by most workers.
Growth centre policy is in effect a very expensive option, both for the taxpayer and the recipients of this form of "development".

(b) Impact of the Growth Centres on the Hinterland of the Centre

According to growth pole theory the impact of a pole on its hinterland takes place through the operation of four mechanisms: through the purchase of raw materials and food from the hinterland; through wage remittances to rural-based families; through the absorption of surplus population of the land which in turn allows for the stimulation of commercial agriculture; and through the spread of investment from the growth centre into the hinterland.

It is apparent that none of these mechanisms is operating to any significant degree - particularly in homeland areas.

i. Purchase of Raw Materials and Foodstuffs

In homeland areas, few industries derive their inputs (raw or otherwise) from the local region: most come from major metropolitan regions, or from developed agricultural areas. Where inputs are local, the supplier is rarely a smallholder, as there are severe obstacles to the stimulation of peasant agriculture over and above the problem of a limited market (d). Even basic foodstuffs are usually purchased from sources outside the region, and frequently the higher income (and more mobile) section of the population commutes to larger centres to shop rather than relying on the smaller and more expensive outlets in the growth centre. This "leakage" of purchasing power has been documented elsewhere. (5).

ii. Migrant Remittances

Although the dependence of South African rural areas on migrant remittances is known to be great, it seems unlikely that migrant remittances from growth centres will make any significant
contribution in this regard. This is partly because the numbers of workers employed in growth centres are small relative to the total industrial workforce (13.17% of the Black labour force in manufacturing is employed in growth centres) and partly because wages in growth centres are lower and the cost of living higher, thus placing a limit on the amount it is possible to remit.

Taking the Transkei as an example, Butterworth and Umtata, the main growth centres, employ a total of 11 000 workers. Three quarters of these earn an unskilled wage (estimated at R104 a month) under conditions in which the household subsistence level has been estimated at R235 a month. In the first place it is difficult to imagine how any money at all can be spared each month to send back to rural families; in the second place, remittances from 11 000 workers can have very little impact on the rural population of the Transkei (presently numbering 2.2 million people).

iii. Absorption of the Rural Population

The growth centre model assumes that by absorbing surplus rural population from the land, land holdings can be enlarged and consolidated. This, together with the demand created by an urban market, will stimulate agricultural development.

The problem with the operation of this mechanism lies firstly in the numbers of people which would need to be absorbed by growth centres, and secondly, in the other factors which are providing a block to agricultural development (in the homeland situations particularly) (e).

The Transkei example demonstrates this well. It has been calculated (1980 Development Strategy) that by the year 2000, 60% of the presently rural population will have to be urbanised if commercial agriculture is to be a viable proposition. What this means in effect is that if an income of R1 400 - R1 500 p.a. is to be created (6) for some 290 000 rural families, then
200 000 extra jobs in manufacturing will have to be created in the Transkei by the year 2000. The estimated cost of this will be some R2 000m in direct investment. Given that it has been possible over the last twenty years to create only 11 000 manufacturing jobs in Butterworth and Umtata, the chances of this succeeding seem remote.

iv. Spread of Capital from the Growth Centres into the Region

It has been the experience of large cities in advanced capitalist economies that as scale diseconomies set in, manufacturing and other economic activities tend to move out of the central city to locations where land and labour is cheaper and more plentiful and transport is less congested. By contrast it has been found that in peripheral capitalist economies this process is less likely to occur (f) because infrastructure outside of the main cities is usually under-developed, city-based labour organisation is usually less well developed and therefore less of a push factor, and physical contact with the main centres is important in terms of maintaining contact with officials.

There are indications that processes of this kind are beginning to operate in South Africa in relation to industry in the main metropolitan areas. Certain industries have been seeking locations where labour is cheaper and more plentiful, that is, in the growth centres.

However, the growth centres themselves are still extremely small and the chances of them experiencing diseconomies of scale, even in the foreseeable future, are remote.

(v) Conclusion

It appears that in terms of all four mechanisms by which the benefits of a growth centre are supposed to spread to its surrounding region,
there are major blockages which prevent this spread taking place.

In this respect these findings support the results of empirical studies which have been carried out elsewhere in the world: while there may be limited positive impact on the region immediately surrounding the growth centre, beyond this no positive impact is felt and there may even be negative effects.

Three studies of note have concentrated on the spatial variation of certain development indicators around a growth centre. Moseley's (7) regression and trend surface analysis of the impact of the town of Rennes (France) on its surrounding growth space led him to conclude that the spatial extent of the "upward transitional area" within which spread effects occurred, was confined to a radius of some 20 to 30 kilometres from the centre, or the extent of the commuting hinterland. Beyond this, the more remote rural areas were characterised by "population decline, with pronounced net out-migration and decline in the active work force; reduction in the number of small farms and a marked decline in agricultural employment; a declining number of food shops and of building trade establishments, with little or no injection of new industrial activity; relatively low levels of car ownership and of domestic amenities." (8). Robinson and Salih's trend surface analysis of levels of development around the city of Kuala Lumpur (9) indicated a similar upward transitional zone within a radius of ten miles or so of the city. Beyond this the area was in downward transition. Finally, Gilbert in his study of Mendellin, Colombia (10), showed "the development 'scores' in the 25 kilometre band immediately contiguous to Mendellin were far higher than those elsewhere and that the 'scores' in the areas outside this band fell consistently according to their distance from Mendellin." (11). Gilbert draws two important conclusions from his reviews of growth pole impact studies: "The first is that social services and infrastructural improvements do not diffuse from growth centres beyond a certain limited area, whether the region be located in a rich or less developed nation. The second is that either as a result of weak economic 'spread' effects and/or substantial 'backwash' effects, the regions beyond the immediate vicinity of the growth centre received little in the way of positive economic benefit," (12).
A subsequent study by Moseley (13) has taken further an examination of the mechanisms by which spread effects are supposed to occur. Focussing more particularly on the economic impact of a growth centre, he undertook an empirical analysis of the processes of labour recruitment, the purchase by industry of materials and services in the hinterland, and the expenditure of income generated by industrial activity. His conclusions support his previous findings and go soem way towards explaining them. Firstly, commuting hinterlands had remained essentially static over time and migration to the growth centre had been mostly short distance. Extra industrial activity had been generated by purchasing in the region, by the use of local sub-contractors and by the establishment of small branch factories; however, "the scale of such impact is small because most of the larger firms in the centres have been unaffected. Much the greater proportion of 'spin-off' has been outside the region." (14). Further, within the region, "the industrial activity generated in other towns appears to relate directly to their importance as industrial centres and inversely to their distance away." (15). Similarly, the generation of service activity had been channelled primarily to the larger centres, and villages and small towns had largely been unaffected.

(c) Impact of Growth Centres on the Settlement Hierarchy

The growth pole model assumes that the pole will have a propulsive effect on other settlements in the settlement hierarchy. This effect, it is postulated, occurs through the process of diffusion of innovation, the potential for which is related, firstly, to settlement size, and secondly, to accessibility. The theory of innovation diffusion postulates that four mechanisms operate in the diffusion process.

- A market searching process whereby industries in the growth pole explore opportunities in smaller cities.

- A trickle-down process whereby industry is pushed out of the growth pole by rising labour and other costs.
- An imitation process whereby smaller entrepreneurs imitate those in the growth pole.

- A probability mechanism whereby knowledge of innovations is passed on to the smaller towns.

While it was not possible, through the survey, to determine the extent to which these processes were or were not occurring, it is possible to make some general comments about the likelihood of these mechanisms operating.

In the case of the first two mechanisms mentioned, it has already been suggested (above) that growth centres at the present time are far too small to exert any kind of push factor on industries in them. It is only in the major metropolitan areas that these kinds of pressure are beginning to be felt; given the present rate of expansion of growth centres it will be many years before agglomeration diseconomies set in and industries find it necessary to seek cheaper labour or new opportunities elsewhere.

In the cases of the third and fourth mechanisms the likelihood of them occurring cannot be excluded. However, it is possible in the first place to assume that their occurrence is limited and in the second place that where they do occur their developmental impact will be minimal.

In the first place both the "imitation" process and the "passing on of innovations to smaller towns" assume the existence of a physical and functional connection between the growth centre and other smaller towns. While this kind of interconnection does exist to some extent in the areas of South Africa outside of the homelands (where basic infrastructure is reasonably well developed) the chances of it occurring in the homelands is far less likely.

For example, in the Transkei, there is no settlement hierarchy as such and linkages between settlements are poor. Most of the smaller towns in the Transkei (that is, other than Butterworth and Umtata) have emerged as a result of "artificial" factors. Firstly, the traditional
settlement pattern of the region is not urban at all, but consists of scattered homesteads with a common lineage forming the basis for local clustering. This traditional scattering has to a large extent been eradicated by a second form of urban settlement - the consolidated village. These villages have been formed as part of the implementation of "betterment schemes" (g) and close to half of the rural population has been resettled into them. While their size may vary from between a few hundred to over 10,000 people their functional size is usually limited at best to the provision of a few basic services and a general dealer.

The third main form of urban settlement is the official towns of which there are 28. These were initially established as administrative outposts for each magisterial district and few have diversified away from this function. Approximately half of these towns have less than 1,000 population and the largest has 6,000. Few, too, have developed into urban centres in the accepted sense of the word: those that have, or have the potential to, are located on major transport routes (Qumbu, Idutywa, Lady Frere), in more isolated parts of the region (Flagstaff, Lusikisiki, Mount Fletcher) or have been chosen as locations for industry or tourism (e.g., Port St Johns).

It is thus only these few more developed urban places which could potentially be expected to have a functional relationship with the "growth poles" of Butterworth and Umtata, and this potential is affected by a number of other factors.

Firstly, there are only eight towns which are physically well connected (in terms of a tar road) to Butterworth and Umtata (h), physical connection being an important pre-condition for functional connection.

Secondly, physical connection tends to have a two-edged effect: where two towns are located relatively close to each other and are connected by an efficient transport route there is a tendency for one to grow at the expense of the other. This has happened in the case of two of the smaller towns which are situated within the "range" of Umtata (i), both of which are in relative decline. At a broader scale it has also happened in the case of Butterworth which suffers extensive leakage of purchasing power to East London.
Thirdly, there is a large size gap between Butterworth and Umtata and the next largest three towns: the largest, Mt Frere, has only 3,000 people compared with 65,000 and 35,000 in Umtata and Butterworth respectively. The chances of industry or commerce of any significant size moving out of towns which are already relatively very small, to towns which are little more than villages, is remote. There are, moreover, no "push" factors operating as yet in Butterworth or Umtata and the level of service and infrastructure provision, while poor enough in the main towns, is even poorer in the other settlements.

It thus appears that, to date, the impact of Umtata and Butterworth on smaller settlements in the hierarchy has not been great: in fact, that effect which has occurred has tended to be negative rather than propulsive.

A second major assumption underlying this aspect of the growth pole model is that a diffusion of innovation from the growth centre to other smaller towns in the settlement hierarchy will automatically have a positive developmental impact. The implicit assumption here is that the only blockage to entrepreneurship, or the establishment of industry in the smaller towns of the rural areas, is knowledge or technique. This ignores the other major obstacles which are at present hindering the economic development of smaller towns: a limited market, lack of capital, poor or non-existent infrastructure, competition from industries in larger towns (and industry producing under heavy subsidy in the case of growth centres).

Conclusion

Generally it appears that the impact of growth centres on their hinterlands in South Africa has been minimal and, moreover, the preconditions for a positive impact to occur in the future are not in evidence. In many respects this is not surprising: a similar pattern has emerged with respect to growth centres in other parts of the world.
It is, however, necessary to recognise that variations exist between different kinds of growth centres. Deconcentration centres have fared best in terms of provision of employment and income but it can be expected that their impact on their hinterlands will be minimal as a result of their strong dependence on the neighbouring metropolitan area. "White" town growth centres have performed less well in terms of income and employment provision but they have been able to provide a reasonable level of social infrastructure (since they are mostly long-established and larger towns) and it can be expected that some impact on the surrounding region has occurred (since the long established industries located there have a higher level of local linkage). Finally homeland and border-based growth centres have fared least well in terms of initiating regional development. Incomes are lowest, levels of social infrastructure are very poor and there is minimal beneficial impact on the surrounding region since most linkages are established with larger towns and the major metropolitan areas. It is apparent, therefore, that where developmental initiative is most required (that is, in the homeland and deep periphery areas) the growth centre model has been least able to provide it; where it is least required (near the metropolitan areas and more established "White" towns) the spin-offs from the policy have been greater.
4. CONCLUSION

According to classical growth pole theory, the ability of a growth centre to promote regional development depends on its ability to promote self-sustaining growth at the centre, to raise the quality of life in the centre, and to diffuse benefits into the surrounding region. None of these processes is occurring to any significant extent: growth is mainly localised close to metropolitan areas, and where it has moved further afield to the "deep periphery" industries are inevitably heavily subsidised and dependent on metropolitan links.

To date, the only contribution which growth centres have made to regions in the deep periphery is the provision of a certain number of jobs. Even this achievement needs to be qualified, however, as the level of unemployment in homeland areas is the direct result of state policy (i.e. influx control/resettlement). It seems likely that if neither decentralisation nor influx control had existed, the same number of jobs would have been created elsewhere, and under better conditions for workers. In this sense, growth centres in homeland areas have not improved living conditions within the centre itself. Nor have they diffused growth, or stimulated development beyond the immediate limits of the centre. In some of the older, established "White" towns, industry is more closely linked to the hinterland, and in this sense, some "spread" effects are discernable. In these cases, however, close local linkage appears to have occurred prior to the implementation of the policy, and a number of industries which have been attracted as a result of policy are not locally linked. Further, these centres are the least attractive to decentralising industry, and few manage to attract more than a handful of these industries.

There is little evidence that state policy has attempted to challenge these limitations; in fact, there is evidence that the form of the policy is exacerbating problems, if not causing them in the first instance. For example, the insistence on diffusing development to a number of growth centres is preventing the build-up of inherent advantages other than a ready supply of cheap labour at any group of centres (with one or two exceptions). The failure to develop a "local economy", or even
agglomeration economies in the majority of centres means that the attraction of industry to points in less well-located homeland and border areas will be dependent in the long term on the creation of essentially artificial conditions: huge subsidies, and the maintenance of a supply of cheap labour. In these areas, whereas industrial decentralisation policy ostensibly aims to provide alternative measures to coercive means of controlling migration and of retaining "ethnicity as the fundamental organising principle of South Africa's political economy" (16), it may well come to depend increasingly on coercive measures (e.g. influx control, prevention of trade unions) to maintain conditions attractive to industrialists (j). This is likely to negate the potential developmental effect of the policy by perpetuating low levels of welfare in the periphery.

However, as a number of authors have pointed out (18), the policy was never simply intended to be developmental in the conventional sense. Rather its operation (and hence its form) has been governed by a number of often contradictory imperatives: curbing migration to metropolitan areas, bolstering homeland policy, providing a basis for some form of federalism, responding to uneven spatial development and resource limitations, strategic concerns, responding to problems inherent in the creation of a surplus population (particularly through relocations) in the periphery, responding to the demands of (White) constituency politicians, maintaining or encouraging international economic competitiveness, and even, recently, preventing "over-urbanisation" within the periphery.

The success of the policy (in terms of achieving self-sustaining growth) in the future is to some extent dependent on the promised "rationalisation" of the policy and this will depend on which of these imperatives becomes dominant. At least for the foreseeable future, however, it seems likely that the pressures making for dispersed and metropolitan dependent development will predominate.
NOTES

a. According to figures from the 1982 Decentralisation Board Report. The figure rises to R17 066 if the average cost of providing housing loans to local authorities over the past 20 years is included. The current cost per job is probably considerably higher, but no consolidated figures are available.

b. The act limits the number of Black workers who can be employed in metropolitan areas. In 1976 at least 23 Transvaal clothing factories were closed down as they had exceeded their Black-White ratio (2).

c. As a result of low wages and "leakage" of purchasing power to the larger centres.

d. Such as the economic viability of commercial farming, lack of adequately sized land holdings, lack of capital, labour disruption caused by the lure of migrant labour, competition from supplies based in South Africa and producing under subsidy.


f. Ibid.

g. Betterment schemes involve the resettlement of rural families into villages in order to "assist land consolidation".

h. Idutywa, Mt Frere, Engobo, Mt Ayliff, Qumbu, Cofimvaba, Libode, Tsolo.

i. Idutywa and Qumbu (Idutywa also being subject to a lack of water supplies).

j. Significantly, this has already occurred to some extent in East London where SAAWU trade unions have been severely harassed - partly because their existence threatens one of the few "inherent advantages" in the resource-poor region (17).

(APPENDICES TO THIS PAPER ARE AVAILABLE ON REQUEST)
REFERENCES


8. Ibid., p. 73.


11. Ibid., p. 329.

12. Ibid., p. 331.


15. Ibid.


These papers constitute the preliminary findings of the Second Carnegie Inquiry into Poverty and Development in Southern Africa, and were prepared for presentation at a Conference at the University of Cape Town from 13-19 April, 1984.

The Second Carnegie Inquiry into Poverty and Development in Southern Africa was launched in April 1982, and is scheduled to run until June 1985.

Quoting (in context) from these preliminary papers with due acknowledgement is of course allowed, but for permission to reprint any material, or for further information about the Inquiry, please write to:

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