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Recent urban growth in Papua New Guinea

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(The author is solely responsible for the views  
expressed in this paper)

## Introduction

Papua New Guinea is primarily a rural country. According to the 1971 census figures, four-fifths of the population lived in villages, hamlets or dispersed settlements at the time of the census. There were only three urban centres with populations greater than 20,000 - Port Moresby, the capital, and Lae and Rabaul<sup>1</sup> - and these accounted for less than 6 per cent of the total population.

This percentage is well below equivalent proportions for other developing regions of the world. For example, it has been estimated that in 1960 the percentage living in centres larger than 20,000 in Africa was 13 per cent; in South Asia it was 14 per cent, in East Asia 20 per cent and in Latin America 32 per cent (United Nations 1972:28). This is perhaps an unfair comparison as there are individual countries in Africa with levels of urbanization lower than in Papua New Guinea, but these figures tend to reinforce the popular image of Papua New Guinea as one of the last primitive areas of the world. This is not the case. There are few people in the country today, if any, who have not been touched by the banes and benefits of the western, so-called modern, way of life. The commercial economy has made deep inroads into the subsistence agriculture of every province; and reflecting and reinforcing these changes has been the growth of a network of urban places, small by world standards but nevertheless having a profound impact on the social and political life of the nation.

As far as the 1971 census was concerned, an urban settlement was defined as a place with a generally urban character, a minimum population of 500 people and a minimum population density of 500 per square mile. Between 1966 and 1971 the annual rate of increase in the urban sector was high - 17 per cent - a figure that is staggering by world standards but one which can be at least partly explained by the small urban base population in 1966 of just over 128,000. According to census figures this had reached 276,318 in 1971. Projections for urban populations based on the 1966-71 trend give some cause for alarm and tend to confirm the fears of those politicians and planners who think that the country is soon to be swamped by a massive unemployed or underemployed urban proletariat. For

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<sup>1</sup> Rabaul was recorded with a population of 26,518 in 1971 but this included densely populated rural areas close to town. A more realistic estimate of the population living in the urban area at that time would be about half of this total.

example, an early prediction by the Housing Commission (1975:8) was for an urban population of around one million in the country in 1986.<sup>1</sup> With this background scenario of Papua New Guinea being rapidly turned into a nation of alienated town dwellers, it is hardly surprising that rural to urban drift, squatters and the unemployed have become volatile political issues. These have recently gained even more prominence through the actual and proposed repatriation of migrants to their home provinces. The Government has initiated an investigation into urban growth and has brought out a report on managing urbanization in Papua New Guinea, which recognizes the inevitability of further rapid town growth and tries to set out guidelines for its rational development (National Planning Office 1977).

However, recent evidence suggests that not only has urban growth slowed down in recent years but that, for a number of reasons, the 1966-71 trends in urban growth were distorted. It is therefore timely to examine urban population figures and estimates derived from recent censuses and sample surveys to see what the pattern of urban growth has actually been in the 1970s and to hazard a guess as to what the future trends may be.

#### Recent data sources

During the second half of 1977 the Bureau of Statistics carried out the Urban Population Survey (UPS) in four major centres (Port Moresby, Lae, Rabaul and Madang) and one small town (Popondetta) in Papua New Guinea. The principal aim of the survey was to generate estimates of underemployment and unemployment in the towns selected but it was also designed so that the sample could be expanded to give an estimate of the total population of each urban area. The sample itself consisted of 500 to 600 households randomly selected in each town; sample sizes were from 1 in 26 in Port Moresby to 1 in 3 in Popondetta.<sup>2</sup>

<sup>1</sup> This figure seems to be accepted by Bryant (1977).

<sup>2</sup> The population totals derived from the UPS are only estimates because they are expanded from a sample, which is subject to sampling error. The standard error for each sample is between 2.5 and 3 per cent. In the case of Port Moresby this means that there was a .67 probability that the actual population lay within the range 104,200 to 109,000. In the case of the smallest town, Popondetta, there was a .67 probability that the actual population lay within the range 5,870 to 6,180.

Accurate mapping of all dwellings based on recent air photography supported by field checks provided the sample frame. The expanded figures refer to urban areas that are approximately the same as those of the 1971 census. However, in some cases, most notably Lae, some adjustment was necessary to allow direct comparison of the census area and the area chosen for the sample survey. These adjustments are detailed in a recent Bureau of Statistics publication (Bureau of Statistics 1978). Again to allow comparison with the 1966 census some adjustments were made so that the 1966 and 1971 census areas were comparable.

The drawing of boundaries which truly represent an "urban" population is a vexed question in Papua New Guinea as daily commuting over considerable distances is important, especially around Port Moresby and Rabaul. However, except for Rabaul, the chosen boundaries include all the significant growth centres in and around the urban areas. I have restricted the analysis of Rabaul to the town boundary area proper, plus the outliers of Malaytown and Toboi. The peri-urban villages and the urban centres of the North Coast Road have been omitted due to the difficulties and confusion of the 1971 census data, which makes comparison impossible. This exclusion will slightly deflate the rates of real urban growth and inflate the influence of the expatriate community. In all the other cases the boundaries represent fairly accurately the limit of a "true" urban area.

To the results derived from the UPS I have added the figures generated for three other towns from full urban censuses: Goroka (August 1976), Kavieng (November 1977) and Kieta-Arawa-Panguna (March 1978). In the cases of Goroka and Kavieng, the 1966 boundary was kept as the basis for comparison while in Kieta-Arawa-Panguna the 1978 census area was adjusted down to that of 1971.

With these results we have information on six of the eight largest towns in Papua New Guinea and two of the smaller provincial capitals, which can give us a fairly comprehensive picture of the development of urbanization in Papua New Guinea over the last 13 years. The basic population figures are presented in table 1 and the growth rates are shown in tables 2 and 3.

Table 1

## Population of certain urban centres in Papua New Guinea, 1966, 1971 and 1977

	1966			1971 (adjusted)			1971 (enumerated)			1977 (actual dates given below)		
	A	B	C	A	B	C	A	B	C	A	B	C
Port Moresby <sup>1</sup>	31983	9865	41848	(59563) 59238	(16944) 16817	(76507) 76055	(52754) 52459	(16944) 16817	(69698) 69276	95200	11400	106600
Lae <sup>2</sup>	13341	3205	16546	(31313) 30148	(6630) 6447	(37943) 36525	(27974) 25230	(6630) 6447	(34604) 33377	41000	4100	45100
Madang <sup>3</sup>	7398	1439	8837	(12217) 14449	(1585) 1897	(13802) 16346	(11703) 13464	(1585) 1897	(13288) 15361	18700	1400	20100
Kieta-Arawa-Panguna <sup>4</sup>	644	111	755	8971	5246	14217	8203	5246	13449	13612	2851	16463
Rabaul <sup>5</sup>	6925	3636	10561	(9457) 8952	(3900) 3818	(13357) 12770	(8301) 7926	(3900) 3818	(12201) 11744	11600	1800	13400
Goroka <sup>6</sup>	3890	936	4826	6916	1557	8473	6162	1557	7719	8593	1001	9594
Popondetta <sup>7</sup>	1844	295	2139	(2221) 4136	(1467) 358	(3688) 4494	(2468) 3688	(1664) 358	(4132) 4046	5700	300	6000
Kavieng <sup>8</sup>	1707	435	2142	2610	504	3114	2342	504	2846	4165	225	4390

Source for 1977 figures:

- 1 UPS, July 1977
  - 2 UPS, October 1977
  - 3 UPS, September 1977
  - 4 Census, March 1978
  - 5 UPS, November 1977
  - 6 Census, August 1976
  - 7 UPS, November 1977
  - 8 Census, November 1977
- A Indigenous population in 1966 and 1971;  
citizen population in 1977.  
B Non-indigenous population in 1966 and  
1971; non-citizen population in 1977.  
C Total population, 1966, 1971 and 1977.

Notes 1. The figures in parentheses for the 1971 adjusted and enumerated populations are those used for comparison with the 1966 census area: they include shipping in the harbour and any necessary boundary changes.

2. The 1966 figures for Kieta-Arawa-Panguna refer to Kieta only.

3. All UPS expanded sample totals have been rounded to the nearest 100 persons.

Table 2

Growth rates of certain urban centres in  
Papua New Guinea, 1966-71 and 1971-77  
 (total urban populations)

	1966-71	1971-77	1966-71	1971-77
	(adjusted data)	(adjusted data)	(enumerated data)	(enumerated data)
	A	B	C	D
Port Moresby	12.8	5.8	10.8	7.4
Lae	18.0	3.4	15.9	4.9
Madang	9.7	3.4	8.8	4.4
Kieta-Arawa-Panguna	(80.4)	2.2	(78.4)	3.0
Rabaul	4.8	0.7	2.9	2.1
Goroka	11.9	2.5	9.8	4.4
Popondetta	5.1	4.7	4.0	6.4
Kavieng	7.6	5.4	5.9	7.0

Table 3

Growth rates of certain urban centres in  
Papua New Guinea, 1966-71 and 1971-77  
 (indigenous or citizen urban populations only)

	1966-71	1971-77	1966-71	1971-77
	(adjusted data)	(adjusted data)	(enumerated data)	(enumerated data)
	A	B	C	D'
Port Moresby	13.2	8.2	10.5	10.5
Lae	18.6	5.0	16.0	6.9
Madang	11.0	4.2	10.0	5.4
Kieta-Arawa-Panguna	(69.4)	6.4	(66.4)	7.9
Rabaul	6.4	4.2	3.7	6.2
Goroka	12.1	4.4	9.6	6.9
Popondetta	5.7	5.2	3.2	7.1
Kavieng	8.8	7.5	6.5	9.4

### The general trend

When we compare the 1966-71 growth rates with those for 1971-77 (columns A and B in table 2) for the total urban population using the 1971 published figures adjusted for boundary changes, we find a dramatic falling off in the rate of town growth in the latter period. This is consistent across the towns except in the case of the smallest towns of Popondetta and Kavieng where there does seem to have been a fairly even transition from the 1966-71 to 1971-77 rates with just a very small decline in the growth rate. The total population growth for the capital, Port Moresby, dropped from 12.8 per cent per annum for the 1966-71 period to 5.8 per cent per annum for the 1971-77 period while the decline in the growth of the second largest town, Lae, was even more abrupt - dropping from 18 per cent per annum for 1966-71 to an almost negligible 3.4 per cent per annum for 1971-77. With the exception of Port Moresby and the two smaller towns of Popondetta and Kavieng, the growth rates are either marginally greater or less than the rate of natural increase of the indigenous population as a whole (around 3 per cent per annum).

### Decline in expatriate population

One of the principal factors which accounts for the decline in the overall rates of urban growth has been the decline in the expatriate population since self-government in December 1973. In 1966 the expatriate population generally accounted for one fifth to one third of the total urban population of each town. In 1971 the relative importance of the expatriate sector was only slightly less than it had been in 1966 but by 1977 it had declined to about one tenth or less of the total urban populations (table 4). The absolute number of expatriates increased by over half in the towns under consideration to 1971 and then declined to almost the 1966 levels by 1977 (see table 1, columns B). The net exodus of some 10,000 to 12,000 expatriates has had a significant effect on the overall growth rates of the towns over the last five to seven years.

There is an unknown factor which may have exaggerated the expatriate decline. In the 1966 and 1971 censuses the data were classified on the basis of race into indigenous, or native Papua New Guineans, and non-indigenous, which included some of the mixed race and also the Chinese population, many of whom had been born in the



Table 4

Proportions of expatriates in the urban centres, 1966, 1971 and 1977

	1966	1971 (adjusted data)	1971 (enumerated data)	1977
Port Moresby	23.6	22.1	24.3	10.7
Lae	19.4	17.1	18.8	9.1
Madang	16.3	12.9	13.7	7.1
Kieta-Arawa-Panguna	25.8	36.9	39.0	17.3
Rabaul	34.4	29.2	32.0	13.2
Goroka	19.4	18.4	20.2	10.4
Popondetta	13.8	8.0	8.8	4.7
Kavieng	20.3	16.2	17.7	5.2

country. In the subsequent counts the classification was based on citizenship so that mixed race and some Chinese and European people were classified as citizens. This could help to explain the relatively greater decline in "expatriate" population in Kavieng, and to a lesser extent Rabaul, where there is a significant mixed-race population. We do know that, as of March 1978, 554 people had taken up citizenship by naturalization and that approximately 550 mixed-race people had claimed automatic citizenship so that the transfer due to change in classification in the census is not likely to have significantly altered the general trend in the expatriate population.

The special case of Kieta-Arawa-Panguna should be raised at this point. The population figures for 1966 refer to Kieta only as there were no urban centres at Arawa and Panguna at that time. The latter are a creation of the copper mine, which entered into commercial production in April 1972. The 1971 figures refer to the complex at the height of the construction phase, when thousands of extra workers, both expatriate and national, had been brought in. In 1971, expatriates represented almost 40 per cent of the total population, the highest for all the towns. A large number were single men on short-term contracts. The astonishing growth figures for 1966-71 therefore represent the growth from almost nothing to the boom phase of construction when labourers were brought in from all parts of the country. A rapid fall-off in the rates of growth after 1972 was therefore to be expected as the mine moved into the more

normal phases of production requiring fewer workers. The comparison of the 1966-71 rates with those of 1971-78 is therefore largely meaningless and I will not consider these in discussing the changing trends in the other centres.

#### The decline in indigenous urban growth rates

Given the effect that the strongly negative growth rate of the expatriate or non-national population for 1971-77 has had on the total urban growth rates it is instructive to examine the growth of the national population only (see table 3). Here again we find that the growth rate dropped in the 1971-77 period compared to the 1966-71 period. The growth rates of the indigenous urban population in all the towns under consideration are less than, and in some cases less than half of, the projected total urban indigenous population growth rate for 1971-86 of 9.4 per cent per annum (Department of Public Health 1974:19). As the indigenous population of these towns accounted for two thirds of the total urban indigenous population in 1971 it is clear that projections of total urban indigenous growth based on this rate will have to be considerably revised downwards.

Papua New Guineans are not moving into urban centres as fast as was originally predicted. Despite rapid localization of positions after the expatriate exodus, the rate of increase of the national population declined - in some cases significantly, for example, Lae, Madang and Goroka. One of the principal factors contributing to this decline was the low rate of creation of employment opportunities in the early 1970s. Associated with and accentuating this aspect is the fact that as expatriates left, opportunities in small businesses and domestic employment also declined. From a purely statistical point of view as the base population increases one would expect the rates of increase to decline slightly. However, it would seem unlikely that these factors could account for a decline on the scale of that observed for some of the towns and other factors must be taken into consideration.

#### The impact of post-enumeration adjustment factors applied to the 1971 census

I have discussed elsewhere the fact that the decline in the growth rate of Goroka for the period 1971-76 was exaggerated by the application

of post-enumeration adjustment factors for presumed underenumeration after the 1971 census (Skeldon 1976). It seems likely that the same can be said for at least some of the other towns, notably Madang and Lae. The total national enumerated indigenous population was adjusted upwards by about 7 per cent and the indigenous population in each town under consideration by between 7 and 14 per cent.<sup>1</sup>

Although the exact methodology of the adjustment has never been clarified, it was based upon the fertility and infant mortality rates calculated from the 1971 census applied to the 1966 census population. Where these differed significantly from the enumerated 1971 population and the difference could not reasonably be explained by migration, an adjustment factor was applied. How the estimated growth rates of urban areas for 1966-71 were ever arrived at remains a mystery. However, from field reports of enumeration in some of the towns, especially Port Moresby, severe undercounting did seem to have taken place.

The growth rates derived from the enumerated indigenous 1971 population are presented in columns C and D of tables 2 and 3. Even using this reduced 1971 population the growth rates of the total population of the major towns again are shown to decline over the 1971-77 period, although the magnitude of the difference is of course reduced. However, in the case of the two smaller towns of Kavieng and Popondetta the population growth rates are actually shown to increase. When we control for the decline in the expatriate population and consider the growth of the indigenous population only, the rates for Lae, Madang and Goroka are still shown to decline and the rate for Port Moresby stays constant at 10.5 per cent per annum. However, in this case the rates for Rabaul, Popondetta and Kavieng increase significantly when compared with those of the 1966-71 period.

I have already noted that there were severe problems in the Rabaul area during the taking of the 1971 census. It is therefore likely that some upward adjustment was necessary in this case. It is highly unlikely

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<sup>1</sup> The actual adjustment factors increased the enumerated figures by: Port Moresby 12.9 per cent; Lae 11.9 per cent; Rabaul 13.9 per cent; Madang 7.3 per cent; Goroka 12.2 per cent; Popondetta 12.1 per cent; Kavieng 11.4 per cent.

that the rate of increase of the indigenous population of Rabaul has increased in the 1970s. The UPS showed that Rabaul dwellings had the highest vacancy rate of all the towns studied<sup>1</sup> and it is recognized that the commercial life of the town slowed after the main exodus of the Chinese population around self-government. The growth rates derived from the adjusted figures which show an overall decline from 4.8 per cent per annum to less than 1 per cent per annum and a decline in indigenous population from 6.4 per cent per annum to 4.2 per cent per annum are likely to be closer to the real rates of growth than those derived from the enumerated 1971 population.

We would expect the problems of underenumeration during 1971 to have been less severe in Kavieng and Popondetta, where the collection of data is easier to control. If this assumption is correct and the enumerated 1971 population did not require adjustment then there does seem to be a possibility that the rates of growth of these towns have actually increased. As their populations are small this is not unreasonable as the extension of one or two services with the development of the province could have a significant impact on the town's population. For example, the construction of the new hospital and the fisheries college in Kavieng since 1971 could account for an increased growth. In the case of Popondetta it is more difficult to draw definite conclusions. Although the number of services has been increased (see Jackson 1976a:132), boundary changes make comparison of 1966 and 1971 extremely difficult and not too much weight can be put on the growth rate derived for this period.

There is no question that the growth of Lae, Madang and Goroka has declined. Even assuming that the 1971 enumerated population was closer to the actual population at that time rather than the published figures, the rates of growth have dropped off significantly. The decline in the rate for the indigenous population of Lae from 16 per cent per annum to less than 7 per cent per annum appears unrealistic. Certainly Lae "boomed" in the mid-1960s with the completion of the Highlands

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<sup>1</sup> The vacancy rate for Rabaul was 13.4 per cent compared to 7.0 per cent in Port Moresby, 7.8 per cent in both Madang and Popondetta and 8.1 per cent in Lae.

Highway in 1965. Also it may be that with the high prices for coffee in 1976 and 1977 the floating population of those unemployed engaged in "raun raun nating" have returned to their villages. However, the UPS in Lae was taken three months after the coffee flush and one could argue the other way that perhaps we could expect a large floating population spending time and money in the easily accessible urban area. There is certainly no evidence for this in the UPS figures.

Although the growth of Lae does seem to have slowed considerably and the wild predictions that it would become the largest city in Papua New Guinea in the near future (see Seiler 1976) were clearly unrealistic, a decrease in the growth rate by some two thirds from 1966-71 to 1971-77 is not to be expected.

It may be that we should treat the 1966 urban census figures with care as there may have been problems of underenumeration then too. Adjusting the 1971 figures, whether justified or not, may have only introduced distortion as the 1966 base may not have been accurate. The unreasonably high urban growth rates for 1966-71 based on the published 1971 figures, with their resultant exaggerated projections, reinforces a point which is becoming accepted as a general principle in demography: the census data should be accepted and published with as few adjustments as possible even though it is realized that serious problems exist (Brass 1975:3). Certainly these problems should be openly discussed when the figures are presented so that various techniques can be applied by the experts (and adjustments in severe cases such as Rabaul are unavoidable), but a blanket adjustment to produce the published data may only compound the problem as seems to have been the case with the 1971 census of Papua New Guinea.

#### The growth of Port Moresby

The case of Port Moresby is singular. Over the 1971-77 period it has had a faster growth than any of the other towns under consideration: of both total population and indigenous population only. Of the large towns the slowing of its growth, if it has slowed at all, has been the least significant. Given the sheer size of the population in 1971, 76,055, and the admitted operational problems, it seems likely that some underenumeration did take place, so that the present total growth rate is probably somewhere between 5.8 and 7.4 per cent per annum and the rate of increase of the indigenous population only of somewhere around 9 per cent per annum.

A slight slowing in the growth rate is to be expected due to the increasing size of the urban population. In absolute terms an indigenous population growth of 9 per cent per annum implies that Port Moresby is increasing by about the indigenous population of Goroka every year - a net annual increase of over 8,000 people.

Two other population counts taken in Port Moresby in the first half of the 1960s allow a greater insight into the growth of the capital (Oram 1976:85, table 1, 1961 and 1964). We find that the total population grew by about 7.6 per cent per annum between 1961 and 1966 while the indigenous component grew at the slightly slower rate of 7.2 per cent. However, for the 1964-66 period the data suggest that the growth was faster: 11.8 per cent per annum for the total population and 11.4 per cent for the indigenous sector only. The growth of Port Moresby seems to have increased during the mid to late 1960s from 7 to 8 per cent per annum to around 11 per cent per annum and then to have declined during the 1970s to about 7 per cent per annum.

The growth rates for the capital are very sensitive to the trends in the expatriate community, reflecting the consolidation of Port Moresby as the principal administrative centre during the late colonial period with the expansion of its bureaucratic functions, and then the decline in the 1970s with the expatriate exodus following self-government and independence. The growth of the indigenous sector paralleled the overall growth rate, surpassing it in the second half of the 1960s and has been maintained more than in any other of the towns under consideration during the 1970s. This reflects the concentration of government services in the capital and the demand for Papua New Guineans to fill positions the expatriates have left. It will be interesting to see if the high rates of growth will be maintained into the 1980s now that localization has stabilized and the rate of job creation has slowed considerably.<sup>1</sup>

#### The general pattern of urban growth

One of the principal general characteristics of change common to all the towns has been the trend towards a normalization of the sex ratios (table 5). In 1966 the indigenous migrant to the colonial towns was

<sup>1</sup> Recruitment in the government sector is expected to grow at only 2 per cent per annum in the late 1970s (National Planning Office n.d.).

generally a young male who would return, and was expected to return, to his village once his period of employment was over. As I have previously shown using census data, the system of circular migration is changing towards more permanent movements (Skeldon 1978) and this is supported by other studies (Young 1978; Conroy and Curtain 1978). Part of this trend towards a stabilization of migration is the greater participation of women and, although the towns are still dominated by men, that dominance has declined sharply since the colonial period. The men call for or bring their wives with them and women themselves migrate independently as education and employment opportunities open up for them in the towns. The increasing number of families living in towns means that more children are born in town, which contributes to the equalization in the sex ratio.

Table 5

Sex ratios of the indigenous populations in the urban centres,  
1966, 1971 and 1977  
 (males/100 females)

	1966	1971	1977
Port Moresby	185	158	139
Lae	202	174	152
Madang	228	163	135
Kieta-Arawa-Panguna	(228)	823	273
Rabaul	338	214	149
Goroka	222	176	152
Popondetta	197	148	139
Kavieng	226	158	152

There are therefore increasing numbers of dependents per wage earner. In 1966 there were around 40 wage-earners per 100 total urban population in the major towns, which shows the domination of employed males at that time. By 1977 this ratio dropped in the UPS towns to around 20 per 100 in Rabaul, Madang and Popondetta and 26 per 100 in Lae. The ratio for Port Moresby, 28:100, was the highest of the UPS towns, which again indicates that it has maintained a relative growth in employment opportunities. However, the trend towards a greater maturity with an increasing number of dependents exists in all the UPS towns.

Irrespective of whether the enumerated or adjusted 1971 population figures are used in the calculations it is clear that there has been a distinct slowing down of the growth of the intermediate-sized towns in Papua New Guinea, Lae, Rabaul, Madang and Goroka. In some cases their total populations do not appear to be growing much faster than the national population as a whole, although when we consider the rates of growth of the Papua New Guinea component only the rates tend to be more than double the overall rate of population growth. The smaller towns of Popondetta and Kavieng seem to have maintained or even increased their rates of growth. However, the capital, Port Moresby, has grown faster than any of the other towns under consideration and has maintained or almost maintained its growth over the last eleven years.

The preliminary results on employment from the UPS show that the proportion of males of 15 years and older outside formal employment has increased significantly in Lae, Madang and Rabaul since the ANU/UPNG Urban Household Survey was taken in 1973-74.<sup>1</sup> The deteriorating economic situation in the intermediate towns in the mid-1970s may have discouraged potential migrants from moving to the urban areas hence contributing to the lower growth rates. One interesting fact which is emerging from the UPS is that the visitor population in all the towns is of relatively minor importance. Both the ANU/UPNG urban survey and my own work in Goroka and elsewhere found large visitor or "floating" populations which represented up to 12 to 13 per cent of the total town populations (Skeldon 1978:40 and Skeldon 1976). With a greater number of dependents per wage-earner and more people outside formal sector employment in the towns and the recent improved commodity prices in the rural sector, mainly coffee, much of the floating population may have been encouraged to move back to the villages. This could be another contributing factor to the slowing of urban growth rates. However, these observations are anticipatory and speculative and more definite conclusions must await a more detailed analysis of the UPS results once they become available.

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<sup>1</sup> For the ANU/UPNG results, see Garnaut, Wright and Curtain (1977).



Trends in the evolution of the urban hierarchy

Although the small number of towns for which we do have recent data does not permit us to draw a picture of the urban system as a whole, we can perhaps draw one or two tentative general conclusions from the data we do have. Jackson (1975 and 1976b) concluded that the 1971 census figures indicated that the urban structure of Papua New Guinea was in transition from a state of primacy to one of oligarchy, or from a situation where Port Moresby dominated the country to one which would be characterized by a series of vital regional centres. I have shown that once boundary changes have been taken into consideration and it is realized that the post-enumeration adjustment factors may have overcompensated, to say the least, for any underenumeration that took place, the populations of the intermediate centres of Rabaul, Madang and Goroka did not increase as fast as was originally thought. Perhaps more surprisingly we find that Lae, too, is not growing as fast as predicted. Rather than developing a series of regional centres Papua New Guinea has moved and appears to be moving farther towards emphasizing its state of primacy. Port Moresby has emerged as the only truly national centre. Lae, despite its more favourable position relative to the densely populated highland zone, does not appear to be fulfilling its early promise as the major industrial centre of the country. Political and administrative decentralization with the establishment of provincial government might help to counteract this trend.

However, the future growth of towns will be inextricably linked with the expansion of job opportunities in the various centres. Garnaut in a paper written in 1974, foresaw an increase in employment opportunities during the latter part of the 1970s and the early 1980s and predicted that this growth would be concentrated in Port Moresby and in a series of small towns scattered throughout the country servicing new development projects (see Garnaut 1977:92-93). Using data from the ANU/UPNG Urban Household Survey, he concluded that the intermediate towns were entering a phase of slower growth. The data I have discussed in this paper certainly confirm the latter point but they can throw little light on his contention of the development of centres at the lower end of the urban hierarchy. If the situation in Kavieng, and to a lesser extent Popondetta, is typical of even smaller centres, then this lower-order development may indeed be the case. However, employment seems unlikely

to grow as fast as Garnaut predicted and it would seem that the reduced growth may be concentrated in the capital city.<sup>1</sup> Employment data that we do have show that over the last three years indigenous employment aggregated for the two largest centres of Port Moresby and Lae grew by about 12 per cent per annum, while that aggregated for other urban centres actually declined by about 2 per cent per annum.<sup>2</sup> The population growth of Lae has slowed down but certainly Port Moresby is the fastest growing town of those under consideration and it seems unlikely that its momentum will be lost in the near future.

In a country of fledgling unity such as Papua New Guinea it may be that primacy and the concentration of services and administration in one centre are the pragmatic road to development, if by that we mean holding the country together as an economic and social and political entity. The urban growth figures certainly do not hint at any trend away from centralism towards the development of regional centres.

On the other hand, the existing trend does show clearly that fears of a massive urban population by the mid-1980s were largely unfounded. Total urban growth from the 1966-71 apparent trend was exaggerated and growth is slowing down. Rather than a total urban population of one million in 1986 it would seem to be more realistic to expect one of around 600,000.<sup>3</sup> This would mean that at that time Papua New Guinea will have approximately 15 per cent of its population living in urban places.

However, we cannot be complacent about problems of urbanization. The continued growth of Port Moresby at rates of 6 to 7 per cent per annum is still high by world standards and will pose sufficient problems for planners and politicians alike.

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<sup>1</sup> Preliminary projections of the National Planning Office based on the 1972-73 input-output matrix for modern sector growth for 1977-81 is approximately 1.5 per cent per annum. This is well below the early forecasts made by Garnaut.

<sup>2</sup> Based on a sample of Department of Labour data analysed by the National Planning Office. I am indebted to Robert Castley and the staff of the Manpower Planning Unit who disaggregated their sample for me.

<sup>3</sup> This figure is the total urban population of 1971 (adjusted) projected forwards to 1986, using the growth rate for the urban population of all the towns under consideration for the period 1971-78. It is about 200,000 less than the more conservative Bureau of Statistics projection of urban population for 1986 of 787,150.

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